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U. S. DEPARTMENT OF AGRICULTURE

³Seasonal MILK

PRICING PLANS:

²
by Stanley F. Krause

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(U.S. FARMER COOPERATIVE SERVICE, +7a
U. S. DEPARTMENT OF AGRICULTURE
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THE Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, merchandising, product quality, costs, efficiency, financing, and membership.

The Service publishes the results of such studies, confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

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Administrator,
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Preface

THIS is a reference report on current seasonal milk pricing plans. It contains separate discussions of base-excess plans, fall premium plans, and seasonal variation of class prices. Major provisions of each of these plans and their implications are considered. No attempt has been made to outline and evaluate all variations in seasonal pricing plans. Rather, provisions in widespread use are emphasized. Neither is the principal purpose to report numbers of markets using particular provisions, nor to analyze comparative effectiveness of the different plans.

The report was prepared for the use of dairy cooperatives and other marketing agencies which may operate or contemplate operating under such plans.

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HIGHLIGHTS

ABOUT the same quantity of milk is needed for fluid products in all seasons. For farmers to deliver a much larger quantity of milk in the spring than in the fall leads to serious marketing problems. In many markets, the industry has worked out pricing methods to give producers an incentive to deliver a larger proportion of milk in the fall months. The general approach to the problem is to use money incentives and educational encouragement, not controls and penalties.

Three principal types of seasonal pricing provisions are base-excess

plans, fall premium plans, and seasonal variation of class prices. These systematic, planned incentives are an integrated part of the market, and are a logical outgrowth of organized marketing and of pricing milk according to use. Seasonal price plans are supplements to price variations resulting from operation of basic price formulas and blending of returns. Because dairy co-operatives in most cases have taken the lead in securing adoption of seasonal pricing plans and in working for producer understanding of them, Farmer Cooperative Service made this detailed study.

Base-Excess Plan

ELEMENTARY logic of the base-excess plan is that each producer sets a base by his average deliveries in the fall when the market tends to be short of milk. The farmer who establishes a large base establishes a greater claim to the fluid market of succeeding months than the farmer with less production in the base forming period. These principles underly all base-excess plans. No single set of provisions fits all markets.

Key provisions of the base-excess

plan are base forming period, base operating period, and pool computations. Three to 6 consecutive months of lowest deliveries are the usual base forming period. The base operating period may begin any time after base has been established. It may continue for only the few months of heaviest deliveries or for an entire year. The price of milk that is not bottled usually has been the price of excess milk—under conditions and computing methods applied in most markets during re-

cent years. Base price may be from a few cents to \$1 or more higher per hundredweight than the excess price.

Forming new bases each year is appropriate when the only purposes are to adjust seasonal deliveries and to pay producers according to their seasonal contributions to the market. Setting new bases may be limited (closed or semiclosed bases) when the purpose is to control the *annual* level of deliveries. But unless there is a penalty for deliveries less than base, closed bases greatly

reduce the farmer's incentive to control his seasonal pattern. The leveling of seasonal production may be largely sacrificed for production control.

Dairy farmers generally will support a soundly designed and well-administered base-excess plan that they understand. These requirements may not be easy to attain. Opposition to the inflexibility and administrative problems of closed base plans has caused considerable friction and jealousy among producers in the past.

Fall Premium Plan

THE fall premium plan is devised to set aside money in specified spring months to be added to payments to farmers in certain fall months. It is often called the "Louisville plan." Mechanics of the plan are simple and provisions few.

Premium funds are accumulated in 2 to 4 selected spring flush months. Rates are set in advance as, for example, 30, 40, or 50 cents a hundredweight of milk. This amount is simply taken from payments for milk and is put aside in a fund for payment to producers in fall months. From 2 to 4 fall months are set in advance as the fall premium period.

It is risky to say the fund is "repaid." This expression encourages an impression that each producer individually owns part of the fund put aside. The most general criticism of the plan has been the charge

that the fund is raided by producers who did not deliver milk included in the pool in spring deduction months. The fund is simply *paid* (by separate checks or included in the regular pool) in fall months. The fund cannot be paid to each farmer in proportion to his spring deliveries; that would accomplish nothing. A constructive approach to the roadblock about individual rights to the fund is to convince farmers that it is simply a seasonal pricing plan.

The fall premium plan is said by many careful observers to stabilize the market, to be equitable among producers, and to be simple, flexible, and definite. The conclusion reached for base-excess plans again applies; most farmers will support a soundly designed plan if they are given enough information to understand it.

Seasonal Variation of Class Prices

THE seasonal variation technique is not as formal as other plans. The procedure is to set a definite

schedule of seasonal variations in the Class I price. Emphasis is on Class I, although prices of other

classes may also be varied. This is something beyond the seasonal variation of basic formula prices which results from the interplay of market forces on butter, cheese, nonfat dry milk, and other products and prices. The Class I price may be an average of \$1 a hundred-weight over the basic formula for the year, but \$1.40 above in certain fall months and only 60 cents above in some spring months.

Not only are such seasonal variations the only specific seasonal plan in many markets; they also are used in combination with other plans.

Seasonal price variations in most cases have been modest. It is necessary to have a large variation to provide an adequate seasonal incentive. A serious weakness in applying seasonal variations has been caution, conservatism, or hesitancy. Seasonal variations can be used boldly and with determination. Producers and marketing officials must be sure they want seasonal incentives, are willing to work for their adoption, and intend to stick with them. Frequent changes in the seasonal pattern of differentials undermines producers' confidence in seasonal pricing.

Effectiveness of Plans

NUMEROUS careful analyses have shown fairly conclusively that seasonal incentives result in more nearly even deliveries. It is difficult to say whether one plan is more or less effective than another; studies of this question have not been conclusive.

Advantages and problems of each plan should be considered in choosing the plan for a market. With the

aid of experience in other markets and published views of careful observers, the persons most familiar with conditions in a market are well equipped to select a plan for their market. Their background of familiarity with the market also equips them to devise workable and effective provisions of the plan selected. The plan can then be used flexibly and revised as needed.

Seasonal Milk Pricing Plans

by Stanley F. Krause
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DAIRY cooperatives and others who regularly market milk encounter serious problems because of wide variations in milk deliveries from season to season. Most markets use price incentives to

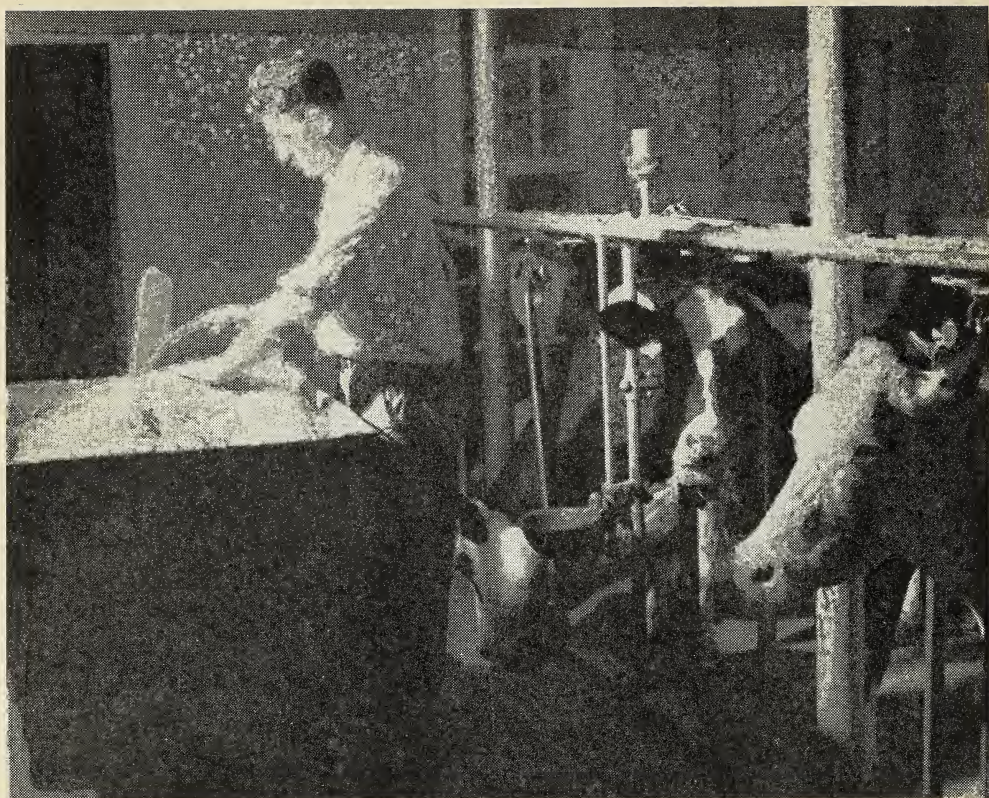
even out deliveries. Continuing interest in seasonal pricing makes it worthwhile to bring together material on principal pricing plans in use in the mid-1950's. Material has been drawn from various sources.

Need for Seasonal Pricing

ABOUT the same quantity of milk is needed for use in fluid products in one season as another. But farmers in most fluid milksheds deliver much more milk in the late spring than in the early fall. Since regular and supplemental sources of supply must be adequate in the season of shortest supply, a surplus of milk remains in most months, reaching a peak in the spring flush period. The sur-

plus ordinarily is diverted to manufacturing uses.

Results of these conditions are different in marketing areas with a fully adequate supply of milk the year round than where milk is short part of the year. With a full supply of milk, the main problems are provision of manufacturing facilities for the seasonal surplus, and the bargaining problems of securing a market for all milk within a stable



There is a year-round need for feed concentrates such as the farmer is handling here, if the producer is to supply a uniform flow of milk to the market.

pricing and marketing structure.

Where milk is short part of the year, it must be obtained from supplemental sources in this shortage season. Producers as a group could increase their gross returns by increasing their fall production enough to fill fluid requirements, if the increase in the fall were accomplished by adopting practices which also would reduce spring production. This would increase the proportion of milk going into Class I uses.

Certain markets fall somewhere between these alternatives and have the problems of both modest imports and a modest surplus. A small surplus may be almost as much a burden as a big one, particularly if there are no large-scale manufac-

turing facilities in the area, since it is costly to provide economic facilities for a small and variable volume. Producers in such markets are at a disadvantage in obtaining favorable prices for their milk in excess of current fluid requirements.

Two main approaches can be used to level out seasonally the volume of milk delivered from farms—price incentives and an educational program for farmers on the benefits of a better balanced production. This report is devoted to the pricing approach to this problem. An earlier report was devoted to the educational approach (11).¹ Information on seasonal pricing practices can be helpful to all marketing

¹ Italicized figures in parentheses refer to literature cited, p. 51.

agencies interested in securing a closer seasonal balance between deliveries and needs for fluid uses.

Pricing Problem

The pricing problem is to provide seasonal incentives sufficient to obtain a flow of milk more in conformity with fluid requirements. It is not necessary for every producer to deliver the same amount of milk each month—if that is what the market requires. Different seasonal patterns tend to average together to make a more uniform pattern for the market. But it is the goal to encourage enough farmers to produce and deliver milk in the fall so the needed market pattern is reached.

This implies a voluntary approach of money incentives and educational encouragement rather than control and penalties. The voluntary approach carries with it

a need for fair and equitable treatment of all. The pricing problem relates to the objective of fitting deliveries to needs of the market. The equity problem is to distribute returns from milk fairly among producers.

Each type of seasonal pricing plan attempts to reward the farmer who increases his deliveries in the short season as compared to his deliveries during the flush. The fall or winter peak producer keeps the market supplied in the most critical season and is rewarded by a higher annual average price.

Seasonal pricing provisions may be weighed, then, by two requirements. First, they must be designed to correct a marketing problem. Second, they should provide equitable returns to producers with different seasonal patterns of milk deliveries. Equity is principally a matter of judgment to be decided by those concerned.

Historical Development

SEASONAL variations of prices are commonplace. Noteworthy in the history of milk pricing has been development of systematic, planned seasonal pricing provisions. Current seasonal pricing practices are a logical outgrowth of organized marketing and of pricing milk according to use.

The organization of bargaining cooperatives and use-classification pricing of milk gained a firm foothold in a number of larger markets between 1915 and 1920 (5, pp. 20-27; 12). At first prices usually were set for some months at a time, and eventually pricing formulas were adopted. Formula prices generally followed adoption of

State and Federal milk orders. These practices of advance pricing naturally included provision for seasonal variations in prices.

Some markets have not gone beyond simple provisions. Milk may be priced according to use with the price of each class depending month to month on results of a pricing formula. For example, the average of prices paid for manufacturing grade milk in the previous month may be used to determine the price of market milk in the current month. Distributors would pay for milk used in Class I (fluid uses) perhaps \$1 a hundred-weight more than the local average price of manufacturing grade milk.

This would be the simplest of provisions, with the same price differential for Class I milk month after month. There would be modest seasonal variations of prices, but this approach does not qualify as a deliberate, systematic seasonal pricing plan.

Additional steps in seasonal pricing may be viewed as adding bit by bit to seasonal incentives provided by changing utilization and changes in basic prices. There has been constant reappraisal in markets with alert leaders of how much seasonal incentive was needed. Several elements of pricing mechanics go together to provide the entire incentive. Separate, specially designed seasonal plans were a final step to provide the entire incentive considered necessary. In many cases, these plans provided most of the total seasonal incentive in effect during the mid-1950's.

The next historical step was to vary seasonally the differential of the Class I price from the formula in use. This practice continues in many markets. The incentive to adapt deliveries to needs of the market is increased by pricing Class I milk, for example, 60 cents above a basic formula in specified spring months, \$1.40 above in fall months, and \$1 above in the other months. This plan may be described as seasonal variation of class prices, and is the simplest of separate, systematic seasonal pricing plans in current use.

Base-excess plans adopted in Baltimore and Philadelphia have been credited generally with being the first well-developed marketwide base or quota plans. A base plan was first used in Baltimore in 1919 and in Philadelphia in 1920. Use

of various base-excess plans spread. Early in 1940, it was said: "Among 90 cities with a population of 100,000 or more, on which data are available, only 14 have witnessed no trial of some plan of this type" (24, p. 3).

Origin of fall premium plans is generally traced to Louisville, Ky., in 1944. This plan continues commonly to be called the "Louisville Plan." It may be noted that the Stark County (Ohio) Milk Producers' Association adopted a mild form of fall premium plan in 1941. The maximum rate of deduction was a modest 3 cents a hundred-weight (3, p. 11). Fall premium plans have been used in at least 26 markets at one time or other.

Dairy cooperatives have taken the lead in most cases in securing adoption of seasonal milk pricing plans. They continue to have a strong interest and take part in establishing changes in terms and provisions of seasonal pricing plans once adopted. Dairy cooperatives have a special interest in the question of equitable distribution of returns, as well as the problem of correcting seasonal marketing problems.

Seasonal pricing plans have become part of many State and Federal milk marketing orders. Seasonal provisions of Federal orders will be emphasized throughout this report since much milk for fluid use is marketed under terms of these orders and also since so much information is conveniently available on provisions of Federal orders.

The early part of this historical sketch implies that the seasonal price provisions described are always associated with class pricing

and with pricing formulas. There are numerous exceptions in smaller cities and towns, and especially in

Southern markets. Some of these variations will be discussed in appropriate sections of this report.

Base-Excess Plans

BASE-excess plans were conceived early as a way to tie a producer's seasonal incentive to his own efforts. The elementary logic of the plan is clear and appealing. Each producer sets a base by his average deliveries in the fall when the market tends to be short of milk. The farmer who sets a large base establishes a greater claim to the fluid market during succeeding months than the farmer with less production in the base forming period.

The base-excess plan for distributing among producers the sales returns in a milk market involves the following: (1) Assigning to each producer a specific base of milk, determined by his past shipments; (2) determining for each pay period the quantity of base milk and the quantity of excess over base that each producer has delivered; (3) determining for each pay period one price to be paid producers for base milk or for a percentage of base milk, and another price for all other milk; and (4) paying each producer the base price for all base milk and the excess price for his excess. Specific provisions of base-excess plans will be described and illustrated in greater detail later in this section.

Many variations of base-excess plans have been, or are being, used. The details of plans adopted in different markets have been worked out to meet the distinct and varying circumstances of each market. Although the underlying principles

are common to all, no single set of provisions has been devised which will fit into all market structures and operate smoothly and equitably for all concerned. In view of these variations, each major provision of base-excess plans will be discussed separately.

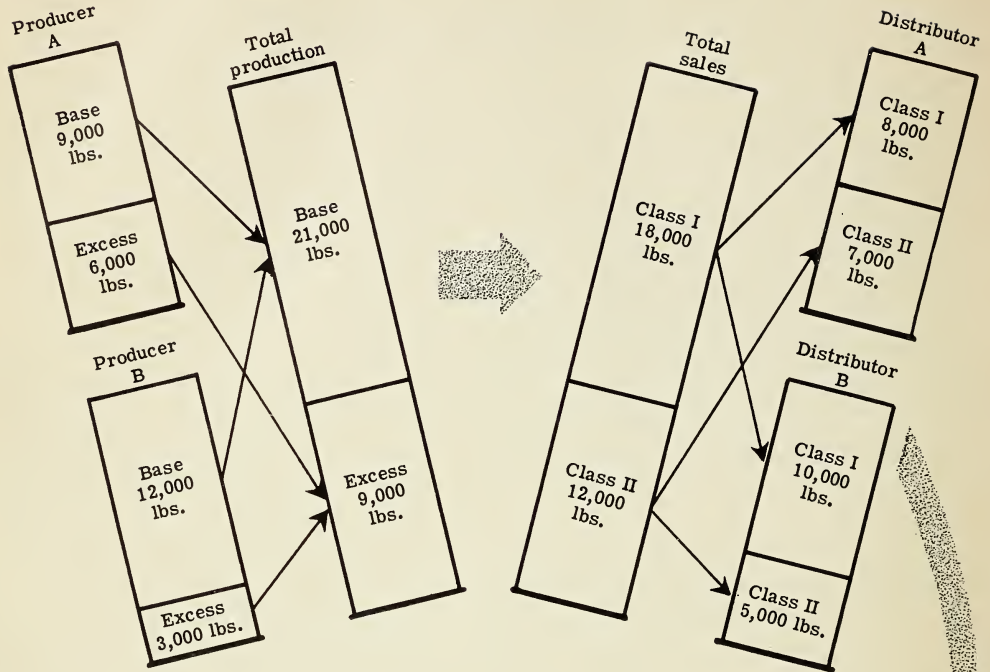
The variations extend even to the names applied to the plans. They have been referred to as base-surplus, base, rating, base and excess, basic-surplus, quota, surplus and base-allotment plans, as well as the recently popular term, base-excess plans. The word excess is believed by industry groups to be more pleasant and less subject to misunderstanding than the word surplus.

The popularity of base-excess plans in the 1930's was mentioned. They were discontinued in a number of markets by 1940 or 1941 and were discontinued in most remaining markets during World War II. Farmer dissatisfaction led to the early actions, and wartime marketing conditions to the later changes. This experience does not necessarily indicate that the base-setting approach is faulty. There have been several changes in the usual provisions and administration of the plans, generally resulting in greater satisfaction.

Each year since about 1947 a number of markets have newly adopted or re-adopted a base-excess plan. This has progressed until the plans again are in widespread use. On January 1, 1957, exactly half

Figure 1.—Operation of base-excess plan

I. The Flow of Milk



II. Payment for Milk

Producers are paid according to base-excess plan			
Item	Pounds	Price	Total
Producer A			
Base	9,000	1 \$4.75	
Excess	6,000	3.25	\$427.50
Total	15,000		195.00
Producer B			
Base	12,000	1 \$4.75	
Excess	3,000	3.25	\$570.00
Total	15,000		97.50
Total payments to producers			
Base	21,000	1 \$4.75	
Excess	9,000	3.25	\$997.50
Total	30,000		292.50
			1,290.00

Distributors pay according to use of milk			
Class	Pounds	Price	Total
Distributor A			
I	8,000	\$5.00	\$400.00
II	7,000	3.25	227.50
Total	15,000		627.50
Distributor B			
I	10,000	\$5.00	\$500.00
II	5,000	3.25	162.50
Total	15,000		662.50
Total payments by distributors			
I	18,000	\$5.00	\$900.00
II	12,000	3.25	390.00
Total	30,000		1,290.00

¹ Excess milk price same as Class II, and total payment \$292.50. There remains \$997.50 to pay for 21,000 pounds of base milk. Base price is \$4.75.

of the 68 Federal orders in effect contained base-excess provisions. Many State-regulated markets and nonregulated markets also had base-excess plans in effect.

Pool Computations

Operation of the base-excess plan may be illustrated with simplified pool computations. Figure 1 represents a market with 2 producers, 2 classes of milk use, and 2 distributors. The essential point from the left of the figure is that each producer has a base and receives a higher base price for deliveries up to that amount, and a lower excess price for excess deliveries. This explains the way the plan affects the individual farmer and shows the importance of bases, base forming periods, and base operating periods. The figure thus provides a general picture of base-excess plans and puts in perspective the individual provisions of the plan.

Each producer delivered 15,000 pounds of milk. Producer A had established a base of 9,000 pounds and B a base of 12,000 pounds the preceding fall. Thus, total delivered bases were 21,000 pounds.

Class I sales were 18,000 pounds, slightly less than delivered bases, and the remainder of the milk was used in Class II. Class I milk was priced to each distributor at \$5 a hundredweight, and Class II at \$3.25. The base-excess plan does not directly affect payments by distributors for milk. Class pricing applies here. The lower right section of figure 1 shows that distributors paid a total of \$1,290 for the milk.

The base-excess plan determines the distribution among individual producers of total proceeds. Excess

milk is priced the same as Class II milk, as is the common practice. The remaining money is divided by total base milk to determine the price that can be paid for base milk—\$4.75.

Producer B received a higher average price than Producer A for this period—\$4.45 compared to \$4.15. This is one way to express the incentive to deliver about as much milk in the fall base-forming period as in the rest of the year.

"There are essentially two different price plans in operation: (1) The class-use plan is the pricing system by which dealers buy milk and is the plan by which the total value of milk in the market is calculated; (2) the base and excess plan is the pricing system by which producers are paid for milk. In other words, milk dealers pay under one plan for the milk they purchase, and farmers are paid under another plan for milk they sell. The total value of the milk is the same in both cases, however" (18, p. 8).

The method of pool computations just illustrated involves paying the Class II price (reserve or manufacturing uses) for excess milk as long as total delivered bases exceed Class I use. The base price is a blend of the Class I and Class II price weighted by the proportions of base milk used in each class.

Base-excess plans partly offset a basic problem of pooling and classified pricing. Under pooling, an individual producer receives an average of prices for different classes of use, even though any increase of deliveries will be purchased by the handler for his lowest class of use. The base-excess plan at least partly corrects this flaw of pooling and pricing milk according

to use. For any excess deliveries, an individual producer no longer receives the market blend, but usually the surplus price.

The computations change slightly if Class I use any month exceeds delivered bases. In that event the full Class I price can be paid for all base milk. The Class I price can also be paid for a small part of excess milk, blending into the price computation to raise the excess price above Class II (reserve or manufacturing uses).

This method of computing base and excess prices is in widespread use and appears to logically complement the pricing of milk according to use. The principal limitation arises when total delivered bases either greatly exceed, or are substantially less than, fluid utilization. In both cases, the difference between base and excess prices is reduced, and it follows that the incentive to deliver a greater proportion of milk in the shortage season also is reduced. Returning to the illustration, in the first case the base price falls below \$5 and nearer \$3. In the latter case, involving less base milk than fluid utilization, the excess price rises above \$3, and nearer \$5.

Other Alternatives

It is possible to pay the Class II (manufacturing use) price for excess milk even though delivered bases are less than fluid use. Since distributors would pay \$5 for more milk than the total of delivered bases, the price paid for base milk would exceed \$5.

This method of computing prices appears to have the advantage of increasing seasonal price incentives. Producers with over-base deliveries

may claim, however, that they should receive the Class I price for part of the excess milk, since some excess was used in Class I.

A second variation is to pay the Class I price for base deliveries and distribute the remaining money for excess milk.² This is the same procedure as in the first illustration, if fluid use exceeds total delivered bases. When delivered bases exceed Class I use, however, the price paid for excess milk becomes less than the Class II price. Returning to data in figure 1, the excess price would have been \$2.64.

This method of computing prices also appears to increase seasonal price incentives. Producers with over-base deliveries may feel in this case that their excess milk is worth at least the competitive price of manufacturing grade milk. This usually is about the same as the Class II price, and therefore the seasonal producers will feel the price of \$2.64 is inadequate. They will have the theoretical privilege of selling the excess milk separately for manufacturing, but this is inconvenient at best and almost impossible with the advent of bulk milk handling.

Other methods of computing base and excess prices involve changing

² "It is possible for this procedure to have the illogical result of pricing excess milk as high as, or even higher than, base milk. For instance, at Nashville, Tenn., in at least 4 separate months in recent years, the excess price for one handler was above his base price. This was the result of the small quantity of excess milk delivered, all the milk being used in Class I, a handler pool, and additional money being added to the pool as a result of audit or other adjustments." Extract from a letter from M. Lloyd Downen, University of Tennessee, Knoxville, January 15, 1958.

total bases to more nearly equal fluid use (Class I). Thus, everyone's base may be reduced 20 percent, if delivered bases otherwise would exceed fluid use by about that percentage. Or, if receipts from producers during the fall are less than fluid use the rest of the year, each farmer may be assigned a base equal to 110 percent of his average deliveries during the base setting period. These devices are used so that the base price can be about the Class I price and the excess price about the same as that of Class II.

These practices of adjusting bases somewhat to fluid use were employed a few years ago in some markets of the South and perhaps in smaller markets elsewhere. Practices have been changed in many southern markets, in particular, and published information does not reveal any market where bases were adjusted to utilization in 1957.

These methods of computing base and excess prices have assumed milk is priced to distributors according to use. A later section, found on page 22, entitled "Base-Excess Plan Without Class Pricing" gives information on other methods of pool computation.

Base Forming Period

Bases usually are established by deliveries of each producer during the months when total deliveries to the market are lowest. Both the length and timing of base forming periods vary considerably, since conditions vary from market to market.

Provisions in effect in Federal order markets give an indication of the different practices in use. Table 1 summarizes provisions in 34 Fed-

Table 1. Base forming periods in Federal order markets, Dec. 31, 1956

Period	Number of markets
July-October	1
July-December	1
August-November	3
August-December	4
August-January	1
September-November	1
September-December	14
September-January	3
September-February	4
October-December	1
October-February	1
Total	34
Recapitulation—length of base forming period	
3 months	2
4 months	18
5 months	8
6 months	6

Source: Tabulation prepared by Dairy Division, Agricultural Marketing Service, U. S. Dept. of Agr. Revised by reference to Code of Federal Regulations.

eral order markets on December 31, 1956. The base forming period started as early as July (Black Hills and Minneapolis-St. Paul) and as late as October (Cleveland and New Orleans). The most common period used was September-December in 14 markets. As to total length, 18 markets used 4 months, 8 markets used 5 months, 6 markets used 6 months, and 2 markets used only 3 months.

Some information is available on base forming periods in southern markets under State control and markets without administrative pricing. The periods used appear typically longer and later than those in Federal order markets. For example, the period of September to February is in widespread use in

Georgia, Mississippi, South Carolina, and Tennessee.

Selecting Base Forming Period

The usual approach in picking the months that will establish bases for individual producers is to choose those with lowest total deliveries. It follows that, where there is a definite and fairly short seasonal slump at the same time during most years, the base forming period may be short. A pattern of gradual seasonal increases and decreases, on the other hand, or variable timing of the flush and shortage seasons seems to indicate a longer base forming period. The months chosen should ordinarily include the months of lowest deliveries.

Some persons have pointed to

the usual timing lag in seasonal patterns in suggesting the appropriate base forming months. They say that, if the base forming period is September to December, many farmers will work to increase production in these months but they will encounter problems. The result will be that October to January deliveries will increase the most. Breeding problems, in particular, lead to this delay and lag. Farmers also may overlook the fact that a cow does not reach full production for a few weeks after freshening. The conclusion from these observations often is that the base forming period should be timed a month ahead of the seasonal shortage. This reasoning has much merit.

Seasonal variations have been reduced substantially in some mar-



Beginning of the school year often signals an upsurge in milk use.

kets, and the timing has become erratic. The seasonal pattern in the Wichita, Kans., pool is an example. Seasonal variations there have not been great, at least since 1950. The most noteworthy characteristic during the years 1950-56 was the irregularity of the pattern. The total amount of milk delivered was moving upward and it was necessary to observe seasonal variations around the trend line. On this basis, the seasonal low was in March (once), April (twice), July (once), November (twice), and December (once) during those years.

Most people would agree that reduction of seasonal variations is good and the market that has level production has a desirable situation. This question arises, however: What seasonal provisions are needed after seasonal variations are minor and irregular variations have appeared? Full discussion of this sort of special question is beyond the scope of this report.

Short Base Forming Period

The preceding discussion implied that the base forming period should be as short as possible and yet include in most years the seasonal low of deliveries. This principle makes a good start but has its limitations.

A short base forming period gives farmers an opportunity to build up production for the short base period but leave troughs of deliveries on either side. Farmers may build up production for a short period by buying cows in the base forming period as temporary additions to their herds, or by temporary extremely heavy feeding rates. It is sometimes alleged that a farmer has carried milk across the road from another farmer not as con-

cerned with base, in order to get a higher base. These latter actions are not in compliance with the rules of the base-excess plan and health regulations.

A short base forming period imposes an additional hardship on a farmer who has already had a hardship like fire or disease in his herd. If the forming period is comparatively long, he may have his herd in full production part of the period and not be so severely affected.

In view of these limitations, the base forming period usually has been 3 months or longer.

Base Operating Period

The base having been established, it is necessary to specify the months the base will apply. The base operating period is the months each year that bases are used in computing returns to individual producers. The base may be established during the period, September to December. This base may be used in computing returns during following months—April to July, for example.

Provisions of Federal order markets indicate the different practices. Table 2 summarizes provisions in 34 Federal order markets on December 31, 1956. Of these markets 29 had a base operating period from 3 to 6 months in length during the usual season of flush milk production in each market. The base operating period in the other five markets was the entire year. In each of these five cases, the base operating period started 1 month after the close of the base forming period. (At this time, that is, the change was made from the base formed late in 1955 to that formed late in 1956.)

Table 2. Base operating period in Federal order markets, Dec. 31, 1956

Period	Number of markets
Entire year-----	5
January-June-----	3
February-July-----	9
March-June-----	4
March-July-----	4
March-August-----	3
April-June-----	2
April-July-----	3
April-August-----	1
Total-----	34
Recapitulation—length of base operating period	
3 months-----	2
4 months-----	7
5 months-----	5
6 months-----	15
12 months-----	5

Source: Adapted from tabulation prepared by Dairy Division, Agricultural Marketing Service, U. S. Dept. of Agr. Revised by reference to Code of Federal Regulations.

As with base forming periods, comparatively long base operating periods were used in southern markets under State control and in markets without administrative pricing. Several sources indicate that 6-month base operating periods were common in the early 1950's in Arkansas, Georgia, Mississippi, and Texas markets. In these cases, the base operating period often began immediately at the end of the base forming period and continued until the beginning of the next base forming period. South Carolina and Virginia markets used the base in computing returns throughout the year.

Selecting Base Operating Period

The base operating period must include the usual months of flush milk deliveries. It may be fairly

short if there is a definite and fairly short seasonal flush at the same time most years. A pattern of gradual seasonal increases and decreases or variable timing of the flush and shortage periods requires a longer base operating period. This comment also applies to the base forming period. Thus if timing is variable, the forming and operating period might each be 6 months. Another alternative is to use bases in computing returns for all 12 months.

A basic question is the choice between a seasonal and a 12-month operating period. A 12-month operating period involves using the base in computing returns at the same time the base for the following year is being established.

Use of separate base and excess prices in computing returns necessarily involves discouragement of production and deliveries above the allotted base. Herrmann and Welden reasoned that it was illogical to discourage deliveries in the fall if the market was usually short of milk in that season (7, p. 4). There is an appearance of working at cross purposes when production is encouraged (to set base for the next base operating period) at the same time production is discouraged by paying a lower price for deliveries over the currently effective base.

Provisions of the Detroit, (Mich.) Federal order attempt to overcome this problem. In that case, during any month that total receipts from producers are less than 112.5 percent of total Class I use, all producers are paid the uniform price. That is, any month is automatically not a base operating month if producer deliveries in that

month are not at least 112.5 percent of Class I use (25, p. 304).

Open Versus Closed Bases

This discussion so far has implied open bases—that is entirely new bases are established each year. But, particularly in the 1930's, many markets carried over established bases from year to year with no changes or with small changes. These markets were operating on what we now call closed or semiclosed bases.

An open base policy is appropriate when the only purposes are to adjust seasonal deliveries and to pay producers according to their seasonal contribution to the market. On the other hand, setting new bases may be strictly limited when the purpose is to control the annual level of deliveries.

Closed bases clearly discourage increases in shipments since the increase usually will obtain only the excess price. But unless there is a penalty for under-base deliveries, base-excess provisions with closed bases provide little incentive to control the seasonal pattern.

The issue may be pointed up by saying it is doubtful that closed bases should be discussed in a report on seasonal pricing. The topic more clearly belongs in an analysis of production control devices. There is a tendency, however, to consider closing bases when the market encounters a year-round surplus of milk. This may be done without realizing that seasonal pricing is largely sacrificed for this means of production control.

In the late 1930's, many producers became dissatisfied with base-excess plans with closed bases. They objected to the inflexibility

of the plans, seeing that they discouraged adjustments in farm operations that were otherwise desirable. Adjustment of bases for special circumstances created distrust, jealousy, and friction among farmers. These conditions led to the elimination of base-excess plans in several major markets. In the 1950's, this experience is still vivid in the memory of many persons, and officials have tried to avoid repetition of the earlier mistakes.

Farmers and officials who consider closed base provisions should weigh the matter carefully. They should study the pricing results of closed versus open bases, as well as earlier experience with closed bases. They may find that it is necessary to largely sacrifice a useful seasonal pricing plan in an effort to deal with what seems a burdensome surplus.

Research underway at Virginia Polytechnic Institute, Blacksburg, Va., in 1957 and early 1958 may be noted. In Virginia markets studied, total deliveries were comparatively uniform although bases in these markets had been semiclosed for several years or more. There was no clear explanation of the difference between this experience and what the analysis of incentives leads one to expect. Producers for the Virginia markets continued to have a large incentive to keep their deliveries in the base making period of any year from falling below previously established base. There may have been nonprice incentives for fairly even deliveries, as well.

With two minor exceptions, entirely new bases are established each year in Federal order markets. The Detroit and Muskegon, Mich., orders provide partial credits to pro-

ducers who fail 1 year to make their old base during the current base forming period. This partially relieves the hardship that may result from disease or breeding trouble. At the same time, the farmer who fails to maintain deliveries in the fall through carelessness also is spared the full penalty for that carelessness. Partial credits for old base to farmers who fail to make that base also water down the compensation to producers who make a successful effort to increase base.

Bases for New Producers

Provisions of a base-excess plan may specify how new producers are treated. For the purpose of discussion in this section, a new producer is one who starts delivery to the market after the first day of the base forming period and too late to set his base by the simple average of his deliveries. The "too late" part of this definition will be clarified a few paragraphs later. Base-excess rules of most Federal order markets do not include any new producer rules. All Federal orders with base operating periods longer than 6 months, as well as some others, have new producer clauses. Without such a clause, producers who enter the market too late to set a base receive the excess price for their milk during the base operating period.

Other markets give new producers a fractional base although they do not deliver milk during the regular base forming period. Under the Chicago Federal order, a new producer has a base equal to 60, 55, 50, and 50 percent of his deliveries in March, April, May, and June, respectively. At the end of 1956,

10 Federal orders (of the 34 with base-excess provisions) had arrangements that gave a limited base to new producers.³ "Old" producers were permitted in most or all of these cases to refuse their established base and take the new producer provisions instead.

New producer provisions clearly soften the rigors of base-excess plans for new producers and "old" ones with extremely low fall deliveries compared with spring. The new producer who enters too late to set a base is not forced to sell all his milk during a full base operating period at the excess price.

Another refinement is that most base-excess provisions in Federal order markets do not require a producer to start deliveries the first day of the base forming period. Instead, the base is figured by the average deliveries from the first day of actual deliveries to the end of the period. For example, let us say the base-forming period is September–December and Jones first delivers milk to a pool plant on September 23. This is 100 days from the end of December. Jones' total deliveries from September 23 to December 31 are then divided by 100, rather than 122, the total days from September 1 to December 31.

Of course there must be a limit to this privilege. Provisions always specify a minimum number of days. If Jones entered the market on November 1, rather than September 23, his total deliveries probably would be divided by 90, a specified minimum, rather than either 61 or

³ Black Hills, Chicago, Detroit, Inland Empire, Milwaukee, Minneapolis–St. Paul, Muskegon, Puget Sound, South Bend–La Porte, and Wichita Federal orders.

122. Thus October 2 would be the last day to start delivery to a pool plant without penalty under the base-excess provisions. This paragraph and the one preceding clarify the "too late" part of the definition of a new producer that was used previously.

Are these moderating provisions desirable? If the base-excess plan is supported on the premise that the fluid market in the spring should belong to those who supplied it in the fall, there seems no reason to give any base to new producers. But this idea implies a restriction on free entry into the market. This negative, restrictive idea is avoided if base-excess plans and other plans are not made to rest on the idea of "rights" to the market. The idea of encouraging a more nearly even seasonal flow of milk is a more positive and constructive approach, avoiding restrictive implications. In line with this, new producers may be granted a small base. They will come under the regular provisions of the plan after the first season, and they will have a definite seasonal incentive.

This issue of new producer provisions is especially important if the base operating period is an entire year. Table 2 shows that this was the practice in five Federal order markets. In these cases, and without new producer provisions, any producers who might begin deliveries too late to establish a regular base would receive only the excess price for an entire year, even during the following fall base forming period. This would indeed restrict entry into the market, except early in the base forming period.

For this reason, all five markets

have new producer provisions. Except for the Wichita, Kans., market the new producer provisions in these markets were liberal in the fall months. Further, in the remaining 4 markets (2 in Michigan and 2 in Washington) old producers could choose the "new producer" provisions in the fall as well as at other times. The entire effect of these provisions was that there was only a modified base operating period in the fall. In most cases in these markets, a producer did not need to take the excess price on more than 25 percent of his deliveries in any month from September to December.

Base Adjustments

Base-excess plans imply that each farmer has the power largely to control his production pattern year after year. In practice, some farmers become victims of circumstances over which they have no control whatever. The base-excess plan penalizes them as though they had intentionally chosen an undesirable seasonal pattern. The resulting feeling of injustice and resentment may more than offset benefits of the plan. Some provisions for avoiding or minimizing penalties arising from circumstances beyond the producer's control may be desirable. However, abuse or misunderstanding of the question of such provisions also endangers the success of the plan. Some compromise of these conflicting considerations is essential.

In the 1930's, many dairy co-operatives permitted members to apply for adjustment of their bases. Grounds for an adjusted base might be disease in the herd, breeding trouble, fire, and other hardships.

A committee of farmers usually considered these requests and made the decisions. The need and desirability of such adjustments no doubt seemed convincing, especially in markets with closed bases. Otherwise some unavoidable misfortunes might have resulted in such a low price for several years that the farmer might have been forced out of business. It should be emphasized that base adjustments did not seem to involve serious, market-disturbing problems except where bases were closed.

It is generally agreed that base adjustment procedures were poorly administered in several markets. The result was jealousy, distrust, and indeed a general loss of confidence among members in the co-operatives themselves. This difficulty contributed to the ending of base-excess plans in some markets.

The painful experience with base adjustment committees has largely been avoided in the 1940's and 1950's. In many of the large markets, base-excess provisions are part of Federal order provisions and are handled by the market administrator. He operates according to specific provisions in the order, and these rules do not provide for base adjustments. Cooperatives that still administer base-excess provisions can similarly avoid the base adjustment problem. This does not eliminate the original hardships but does eliminate the more serious problems that seem to result from base adjustment procedures.

Experience in the 1950's with base adjustments provides striking contrast with that in the 1930's. Then bases of as many as 1,500 producers were adjusted some years at Philadelphia; and at Detroit, ad-

justment requests approached 100 a month in the flush season (27, pp. 18, 21). In 1957, however, few markets were known to provide for adjustments. At Sioux Falls, S. Dak., with about 300 producers, the producers' cooperative used a base-excess plan not incorporated in the Federal order. There were reported to have been two base adjustments in 1955 and none in 1956.

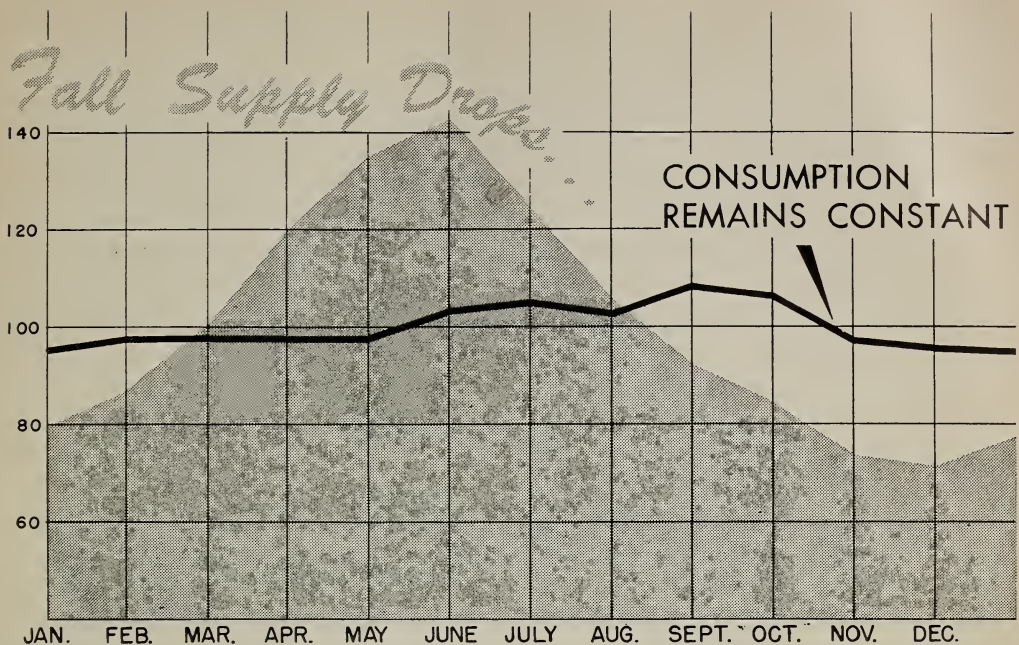
The Pure Milk Association, Chicago, Ill., adopted in 1955 a "loss of base" feature in its insurance program. Thus, members whose base was reduced by fire or quarantine for disease received payments for the loss through the insurance program. The loss was figured by comparing the producer's average deliveries for 7 days before the disaster to the base as computed by the Federal market administrator (9, p. 8). This method of compensating for disaster losses may be less troublesome than base adjustments have been.

New producer provisions, discussed on pages 14-15, provide still another way to soften penalties arising from circumstances beyond the producer's control.

Base Transfers

Base rules must specify whether base may be transferred and under what conditions. More than 10 percent of herds in a market may change hands during a year, so the privilege of transferring base is important. Officials in some markets formerly spoke of "turnover rates" of 20-25 percent of producers a year, but the increasing specialization of milk production has reduced this turnover.

The base transfer provisions in Federal order markets illustrate



Fall milk supply may drop but consumption remains constant.

several alternatives. These range all the way from free transfer of base to very restrictive provisions.

Two elements of base transfer rules appear the same in all cases in Federal orders. In every case, transfer requires written application to the market administrator. In many cases, the order states further that the application must be signed by all interested parties. The other uniform element is that the base may not be split; the entire base of a producer must be transferred, or none.

The transfer of part of a base could become an abused privilege. A large portion of base might be transferred with a few cows in order to "cover" the purchasing producer who otherwise would expect to exceed his base.

Denver (Colo.) Milk Producers, Inc., operates a base plan with the privilege of transferring parts of a base. (Denver had no Federal or State marketing order in 1957.)

The transfer of fractional bases is made only on showing a hardship, and it requires approval of the association manager. An interesting exception is that a fractional base may be transferred with sale of one or more registered cows. The purpose of this exception is to encourage exchange of registered cows for herd improvement.

Almost half the Federal order markets with base-excess provisions had restrictive transfer provisions in early 1957. Typical wording may be quoted from the "Appalachian" order, as follows, "Bases may be transferred by notifying the market administrator in writing before the last day of any month for which such base is to be transferred to the person named in such notice only as follows:

"(1) In the event of death, retirement or entry into military service of a producer, the entire base may be transferred to a member of such producer's immediate fam-

ily who carries on the dairy operations.

"(2) If a base is held jointly and such joint holding is terminated, the entire base may be transferred to one of the joint holders" (25, p. 292).

These provisions very definitely restrict base transfers. Almost another half of the base-excess provisions of Federal orders permit virtually free transfer of base. The remaining few orders have more liberal transfer provisions than the example quoted, but do not permit free transfer.

The restrictive base transfer provisions probably resulted from experience in the 1930's with closed bases and sale of the base. Transfer of base is less likely to become a controversial issue when new bases are formed each year.

The transfer of base between handlers may be a problem. Where base-excess provisions are part of Federal orders, the base plan is administered by the market administrator. The base automatically goes with the producer if his milk goes to a different handler. The transfer of bases between handlers is believed rare except under Federal orders or in markets with strong cooperatives.⁴

Obstructions to transferring base between handlers certainly handicap the mobility and efficient marketing of milk. A cooperative is greatly handicapped if it does not establish authority to direct milk of its members from one handler

to another without pricing obstacles.

Too restrictive base transfer provisions may be hard to enforce. For example, a farmer selling part or all his herd may arrange with the buyer and the hauler to pick up milk at the farm where the cows were purchased, delivering the milk in cans of the original owner of the cows. The adoption of bulk handling of market milk may reduce this practice since in many States the hauler of bulk milk is responsible under a State license.

The transfer of a dairy farm after about the start of the base forming period and before the end of the operating period may be seriously obstructed by restrictive base transfer provisions. For example, let us say Brown wants to sell his farm with a milking herd of 30 cows to Smith. It is January, and Brown has set a daily base of 500 pounds. This base will be used in computing returns from February through July, 181 days. Assume further that the herd has been bred, fed, and otherwise managed so the earned base can be produced and delivered each month. If the average difference between the base and the excess prices averages a modest \$1 a hundredweight, the base is "worth" \$905. This amount will be lost if Brown sells his farm and herd, but cannot transfer the base.

A base-excess plan thus substantially restricts the free exchange of farms and herds unless base can be transferred along with the herd. It seems appropriate to permit transfer to a new producer on the same farm, and to a producer on another farm on the sale, lease, or other conveyance to that

⁴ Under orders administered by the State Milk Commission of Virginia, producers are transferred between distributors by authority of the commission. A producer's base automatically goes with his milk.

producer of the entire herd. All transfers should require written application and approval of the agency (administrator, cooperative, or similar person or group that administers the plan). Local conditions may make desirable more restrictive, or more liberal, transfer provisions. However, the provisions outlined seem an appropriate starting point. Departures—especially greater restrictions—should be considered carefully before they are adopted.

Quantity of Base Allotted

The usual procedure is to allot as base the average of a producer's deliveries during the base forming period, no more and no less. Minor refinements of this procedure have been described, such as new producer provisions, and the minimum days of delivery during the base forming period.

Some base-excess plans have made more fundamental departures from the usual averaging procedure. The plan may be more "liberal," and allow base equal to

110 or 120 percent of average deliveries in the base forming period. The plan may be more "strict," on the other hand, reducing allotted bases downward from average fall deliveries. Readers who are not interested in either departure from the usual averaging procedure may go on to the next section.

The "liberal" approach of greater bases than average fall deliveries appears to be an effort to maintain producer support of seasonal pricing. This liberality may be acceptable as a temporary measure on introducing a base-excess plan, until farmers become more familiar with the plan. Allotment of greater bases than fall deliveries was used as such a temporary measure in the Chicago, Milwaukee, and Minneapolis-St. Paul markets. In each case the simple averaging procedure was adopted when the educational process was further along and more farmers accepted seasonal price incentives.

Table 3 illustrates the effect of greater bases than average fall deliveries. In this illustration, bases

Table 3. Price returns to producers with different seasonal patterns, comparing base-excess plan with base equal to average of fall deliveries, greater than average, and less than average¹

Seasonal pattern of deliveries by producer	Base in relation to average of fall deliveries		
	Equal	10 percent greater	10 percent less
	Annual average price		
Fall peak.....	\$4. 806	\$4. 758	\$4. 877
Equal spring and fall.....	4. 783	4. 727	4. 794
Moderate spring peak.....	4. 683	4. 682	4. 666
High spring peak.....	4. 453	4. 458	4. 446
Price difference—fall peak to high spring peak..	. 353	. 300	. 431

¹ Data used in computing these prices were based on study of many market situations. These illustrative data are believed to show relationships studied here more clearly than would actual data from any one market for any 1 year.

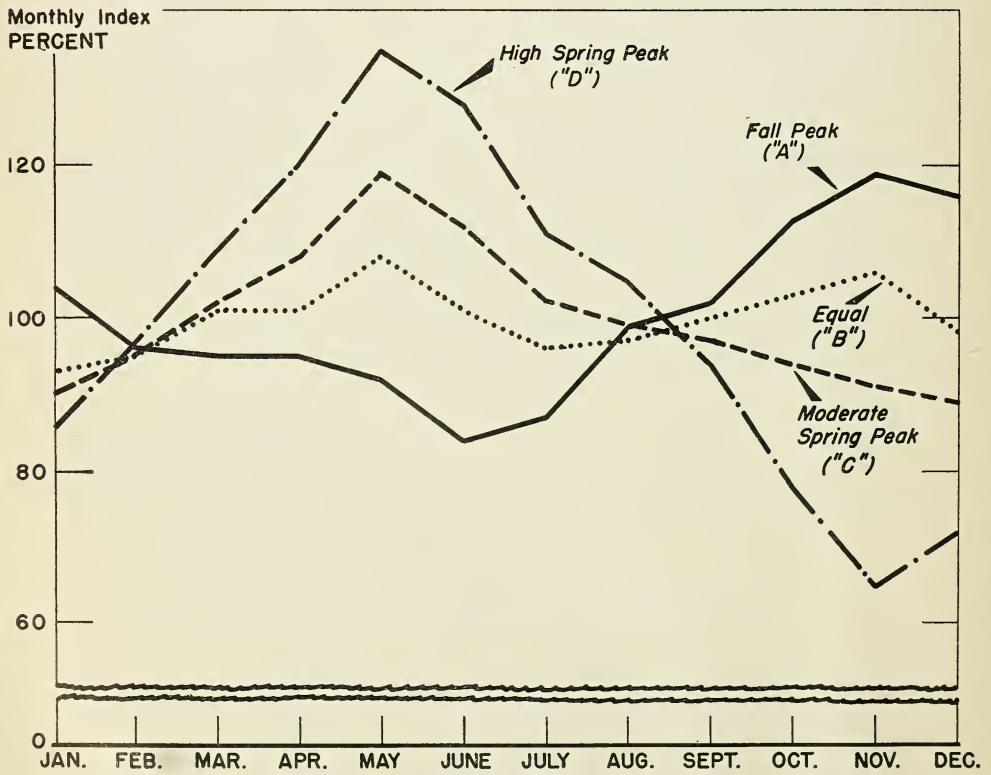
were computed for four hypothetical producers with different seasonal patterns. Figure 2 illustrates these patterns. In table 3, bases were first computed equal to the average of fall deliveries, then 10 percent greater, and finally 10 percent less than average fall deliveries. Many data are used in computing such an example and are too lengthy to include.

With bases equal to fall deliveries, the illustrative "fall peak" producer received an annual average price per hundredweight \$0.353 greater than the "high spring" producer. The seasonal incentive represented by this price difference was reduced to \$0.300 per hundred-

weight when bases were greater than fall deliveries. The reason for this result was that the price paid farmers for base milk was less, since computed and delivered bases were greater. (Recall from fig. 1 that the base price is a blend or weighted average of prices handlers pay for Class I and Class II milk, depending on the amount of delivered base in relation to Class I use.)

No more money is put into the pool by increasing computed bases; it simply is divided differently among producers. A little less goes to producers with the highest fall deliveries compared with their spring deliveries; and a little more

Figure 2.—Illustrative seasonal patterns of milk deliveries ¹



¹These patterns were based on study of records of monthly deliveries of many individual producers. These patterns were incorporated in computations used at several places in this report.

to producers with a high spring peak of deliveries.

In other cases, there has been a decision to allow producers a base that was less than average fall deliveries, so total bases would be nearly equal to Class I use. The last column of table 3 shows the effect of allowing base equal to 90 percent of average fall deliveries in this illustration. The "fall peak" producer received an annual average price per hundredweight \$0.431 higher than the "high spring peak" producer received. The reason for this result was that the price paid farmers for base milk was increased, since computed and delivered bases were less. In this case a little more money went to producers with comparatively the highest fall deliveries, and a little less to producers with a high spring peak of deliveries.

There is serious question whether bases should be reduced below average deliveries to more nearly equal Class I needs. The data presented show that this usually increases seasonal incentives. But farmers may not understand the reason and consequences of the reduced bases. They may think something is being taken from them, rather than that total returns are divided differently. Milk pricing methods are complex at best, and this one complication can be avoided.

The "strict" policy of limiting bases to about the level of Class I use is regarded by some persons as a production control device. However, a base-excess plan remains fundamentally a seasonal pricing system as long as bases are open and handlers pay for all milk used for fluid purposes at an appropriate price. The issue remaining is how

the pool is divided, not how much is in the pool.

Penalty for Under Base

A few markets have experimented with penalties assessed on producers who failed to deliver their allotted base. Under conditions in most markets this would appear strange. Most markets in the 1950's would welcome the underdelivery of base by some producers. However, the penalty or quota system developed under other conditions.

A "base-quota" plan was adopted at Memphis, Tenn., in 1947.⁵ Ordinary base-excess provisions had become ineffective since locally produced milk did not meet fluid requirements. Both base and excess came to have the Class I price.

Seasonal variations were serious to the producers' association since it had assumed responsibility for supplying milk needs of the market. The mechanics of the quota plan were worked out to make deductions against payments to producers who did not deliver their base. Total deductions were an amount equal to the association's net cost of importing milk from other areas to meet handlers' needs. Quota provisions may thus seem a logical companion to full supply contracts with handlers.

An early analysis of the plan stated, "The plan has shifted the burden of the net cost of fluid milk imports from the dealers to the uneven producers whose fluctuating production record makes these imports necessary. Indications are that the plan is an incentive toward more level production" (8. *p. ii*). This plan was later revised

⁵ For fuller discussion, see (8).

considerably but it gives a useful example of *quota* provisions. It has no meaning except in special circumstances. These are that the cooperative is responsible for importing milk at the time the market is not fully supplied from local sources and that the cooperative does not sell this milk at its full cost.

Thus a penalty system has no effect except under limited conditions. An even more basic question is whether it is a suitable seasonal pricing device at any time. The device implies that each farmer should establish a level pattern of deliveries and maintain it year after year. Although any base-excess plan somewhat implies this, quota features added to a base plan increase the farmer's penalty for failing to establish and maintain a level pattern of deliveries.

Would it be good herd management and generally feasible for all farmers to establish consistently level patterns? Perhaps it is not feasible for them to do so. Seasonal price plans aim at making the total pattern of deliveries conform approximately to market needs without requiring each farmer to make his individual pattern conform to those needs. He need not maintain a consistent pattern year after year to obtain desired total results.⁶

Base-Excess Plan Without Class Pricing

A type of basing plan was introduced into many markets before use-classification pricing was adopted. Producers were assigned total bases that about equalled fluid

requirements in the base-forming period. They then were paid a base price for this amount of milk for the following year or the "flush" season of the year, and an excess price for the remainder.

Some markets in the South were using this system as recently as 1956. For example, Tennessee handlers not under Federal control were said to pay producers for their established base about the current price of base milk in neighboring Federal order markets, and about the neighboring excess price for deliveries in excess of base. Records of these handlers were not audited and they did not report their utilization.

This pricing method establishes seasonal incentives as surely as a combination class pricing and base-excess plan. It also may assist in stabilizing the market much in the way of formal class pricing. Certainly the pressure on handlers to cut off producers during the flush season is reduced from that under a simple flat pricing system for all milk. Without the base-excess provisions, handlers are under pressure most of the year either to reduce purchases to their fluid needs or to reduce the price to that of milk for manufacturing use.

The contrast between basing provisions without class pricing and base-excess provisions combined with class pricing may be further clarified. This combination plan, as it sometimes has been called, splits the payment system in two parts. Class prices relate to the method of selling milk to distributors, and to the method they use to compute the total amount due producers. Base-excess provisions relate to the method of distributing

⁶ This issue is discussed in more detail in (10).

sales returns among individual producers. Without class pricing, base-excess provisions are made to serve both duties.

The need for class pricing increases when a market is not short of milk. Shortages provide incentives to move milk among handlers according to their need, largely equalizing percentages of fluid utilization. When larger daily and seasonal reserves of milk produced for a fluid market are diverted to manufacturing, attention is usually given to a class pricing plan.

Base-excess pricing is not a satisfactory substitute for use classification in the final analysis. Distributors are still subject to some of the inequity of the old simple flat price plan, unless the burden can be shifted to producers. Distributors lose when they sell, to manufacturing plants, milk purchased at the base price. In a comparison of distributors, those gain an advantage who have the largest proportion of milk for fluid use. Producers lose when milk purchased as surplus is bottled, and they may be gravely injured if they lose their market.

Farmers can usually obtain better marketing conditions by seeking formal use-classification pricing along with a base-excess plan. The base-excess provisions described do not satisfy all the needs of the market. Class pricing is established with a set of objectives in mind largely related to stabilizing the farmers' market for milk, and it is fundamental to orderly marketing of milk for fluid use. Because base-excess provisions are designed to provide seasonal incentives, they only partly do the job of class pricing.

Farmer Attitudes Toward Base Plans

It is important for farmers to have confidence in the way their milk is priced. Opposition to mechanics of milk pricing, including the seasonal pricing plan, may lead to distrust of dealers and marketing officials, and jealousy among producers and within a cooperative may weaken its entire program.

Surveys in several markets of farmer attitudes toward the base-excess plan in their market have shown them favorable. On the other hand, the preceding discussion has referred several times to situations where farmers did not support the base-excess plan in their market.

Dairy farmers will support a soundly designed and well-administered base-excess plan that they understand. This conclusion was reached by careful review of published reports of findings in several studies, other history, and recent experience in many markets. The three requirements of sound design, good administration, and farmer understanding are not always easy to attain. An earlier publication by the author was devoted to the idea that cooperatives and other agencies should help farmers understand their seasonal problem and price plan (11).

What appear to be the major roadblocks to farmer confidence in a base-excess plan? Opposition to the inflexibility and the administrative problems of closed base plans has caused the most difficulty. In markets with closed bases, there often were wholesale adjustments of those bases, and such adjustments resulted in friction and jealousy among the producers.

The second roadblock is in securing farmer understanding. Numerous studies have shown that people tend to support sound programs they are familiar with and to criticize any program they do not understand. This generalization has been confirmed in several surveys of farmer attitudes toward seasonal price plans. Larger percentages of farmers who knew the provisions of the price plan in their markets have said they approved those provisions than of farmers who did not know important provisions.

Advantages and Problems

Discussion of base-excess plans may be concluded by stating advantages and problems that have been associated with the plans. These claimed advantages and problems have been gathered from many sources, and there will be a minimum of evaluation (5, p. 38; 1, p. 197; 9, pp. 9-12; 15, p. 5; 21, pp. 18-21; 27, p. 5; 7, p. 4; 26, pp. 76-77; 13, p. 129; 2, pp. 33-34).

Some of these statements appear to conflict with others, since they represent the various views of many students of the problem. In addition, some statements may apply to certain variations of base-excess plans and not to others. The wide variety of base-excess plans that have been used may have had greatly different consequences.

Advantages

From the standpoint of fairness, the base-excess plan ties the seasonal pricing results to the individual's own efforts. Individual producers receive different annual average prices for their milk, de-

pending on the amount of surplus they contributed to the market. This is mainly an advantage of any price plan that provides individual seasonal incentives; differences in this respect between major types of plans are minute.

From the market adjustment angle, many producers are likely to respond to the incentives provided by increasing their percentage of deliveries in the base forming months. Since the shortage months are chosen to form base, the adjustments that are made bring supplies and fluid requirements into closer seasonal adjustment.

The plan provides the producer a choice as to how much milk he personally will contribute to market needs. This choice is not complete unless delivered bases are exactly equal to fluid requirements. But the degree of choice is much greater than without any systematic seasonal price plan, and the choice is clearer to see than in other types of plans.

The plan encourages farm families to use more milk on the farm during the base operating period. It also can increase total returns to the group of producers in a milkshed, at the same time requiring fewer producers of market milk.

Problems

The base-excess plan as usually designed does not take account of erratic changes in a producer's pattern and the apparent difficulty of controlling these changes. The mechanics of the plan imply, on the contrary, that the appropriate goal is seasonally uniform deliveries by each producer year after year.

The plan itself provides no in-

centive to deliver more milk in the fall than the spring, compensating for high spring deliveries by other producers. The failure to provide this incentive is seen by noting that delivery of more milk in the fall than the spring simply results in earning base that is not delivered, which does not increase returns. It is possible to argue that a small incentive remains to deliver more milk in the fall than in the spring. However, this discussion does not develop these points exhaustively or evaluate them.

The two preceding paragraphs call attention to the failure of the base-excess plan to recognize that seasonal deliveries by individual producers either complement or offset each other.

The base-excess plan introduces rigidity and tends to freeze the milkshed in a particular pattern, if new bases are not formed each year. Indeed, even open-base plans often are charged with restricting entry into the market and preventing desirable production adjustments. The problem of inflexibility of closed bases tends to be recognized by providing for base adjustments. This may be a jump from the frying pan into the fire, since base adjustments have caused considerable trouble in the past.

The plan is more costly to administer than others. It requires some additional computations and records.

The plan is hard for producers to understand. (Some features of other seasonal price plans are similarly charged.)

The base-excess plan may increase annual production. Note that this charge is opposite to the one that the plan is rigid and restricts

entry into the market. Indeed, skilled observers seem to be about evenly divided, some charging that the plan restricts supply increases and others that it encourages greater annual production. Statistical analysis has not been conclusive on this point.

The plan may shift the shortage season from the fall to the summer. Many farmers seem to respond to the base-excess plan by trying to breed most of their cows to freshen just before, or early in, the base forming period. These farmers, if they succeed, then have low deliveries just before the base forming period. This may lead to a "summer slump" for the entire market. The base forming period may have to be changed to correct this. Another solution is to emphasize breeding for year-round production and to stress the need for a good summer forage program.

Frequent changes in provisions may cause losses to farmers who have made costly changes so that they could capitalize on the plan. These farmers resent the changes and may charge that persons who suggested and approved them showed bad faith. For these reasons, careful observers emphasize the need to announce planned changes long ahead of time. Ideally, changes should not become effective until farmers can shift their production plans appropriately. This would commonly require at least 2 years, however, and this delay may not be acceptable in some cases. Risk of loss of confidence and of resentment may be balanced against the inconvenience of delay in making changes effective.

The base-excess plan causes shifts of income from some sections of a

large milkshed to others. This is because production conditions vary, and it is more practical to increase fall deliveries in some areas than in others. It can be shown that the fall premium plan and seasonal variations of class prices also redistribute payments for milk between areas.

The plan encourages deception, some say. Different persons might not agree on a list of deceptive actions, but they might compile a sizable list. The value on most farms of setting a maximum base and the usual large price difference in the base operating period between base and excess milk provides an incentive for deception.

In a time of stress, the plan may become a point of attack by minority groups. This occurred in several markets in the late 1930's.

Note again that the preceding

statements are given without evaluation, but they are statements of responsible observers. Persons interested in pricing plans may make their own evaluation.

Summary

The list of problems and charges discussed certainly is not conclusive evidence that the base-excess plan is deficient. It seems to have been effective in reducing a seasonal problem and has been accepted by most farmers in several markets where careful studies have been made, and apparently in many others. The first need is to select the seasonal price plan that seems to have the best balance of strong points with problems for a particular market. Then the need is to administer wisely the plan selected, and to keep farmers well informed.

Fall Premium Pricing Plans

THE fall premium plan is devised to set aside money in specified spring months to be added to payments to farmers in specified fall months. The result is to increase differences between fall and spring blend prices. In this respect, the result is no different from that of seasonal variation of class prices; only the mechanics are different. The main difference in results of the two approaches is that the fall premium plan does not change seasonally the prices paid by handlers.

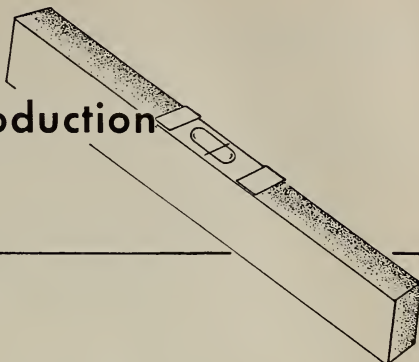
A general analysis of fall premium plans published in 1952 gave several "basic common features" of the plans. These features have not been changed and are quoted in full (16, pp. 7-8):

"1. Fall premium plans are addi-

tions to, and not substitutes for, use-classification, milk pooling, and other pricing mechanisms in city milk markets. The plans do not alter class prices paid by handlers and, unless a plan succeeds in altering volumes of milk deliveries and thereby affecting class utilization patterns, it does not affect the total sum of money paid by handlers in any month or year. Although the plans increase seasonal variations in blend prices, they do not directly affect wholesale and retail milk prices.

"2. Fall premium reserve funds are accumulated during prescribed spring months when producers' milk deliveries normally are seasonally greatest in volume. All plans prescribe in detail the methods for accumulating premium funds.

Fall Premium Plan Is Leveling Production



Miami Valley Milk Producers Association, Dayton, Ohio, used this head on a lead article in its membership publication that began: "The Fall Premium Pricing Plan is doing its work. It is leveling out production between the spring and the fall months."

"3. Premium funds are accumulated on a marketwide basis. There are no deductions from payments to individual producers as such, even though the effect is the same insofar as the amount of money actually received by a producer is concerned. Money accumulated under the plans, therefore, is not of the same status, in a legal sense, as money withheld under cooperatives' check-offs. In other words, a fall premium plan is a peculiar seasonal pricing device, and no more than that.

"4. Some responsible official or organization is designated in each plan as custodian of the fall premium fund.

"5. Distribution of premium funds is made in months when producers' milk deliveries normally are seasonally smallest in volume. The plans prescribe in detail the procedures by which these funds are distributed.

"6. Producers share premium funds in proportion to their fall milk deliveries exactly in the same manner that they share other money paid by handlers for milk."

The fall premium plan has been used in at least 26 markets since it became effective at Louisville in

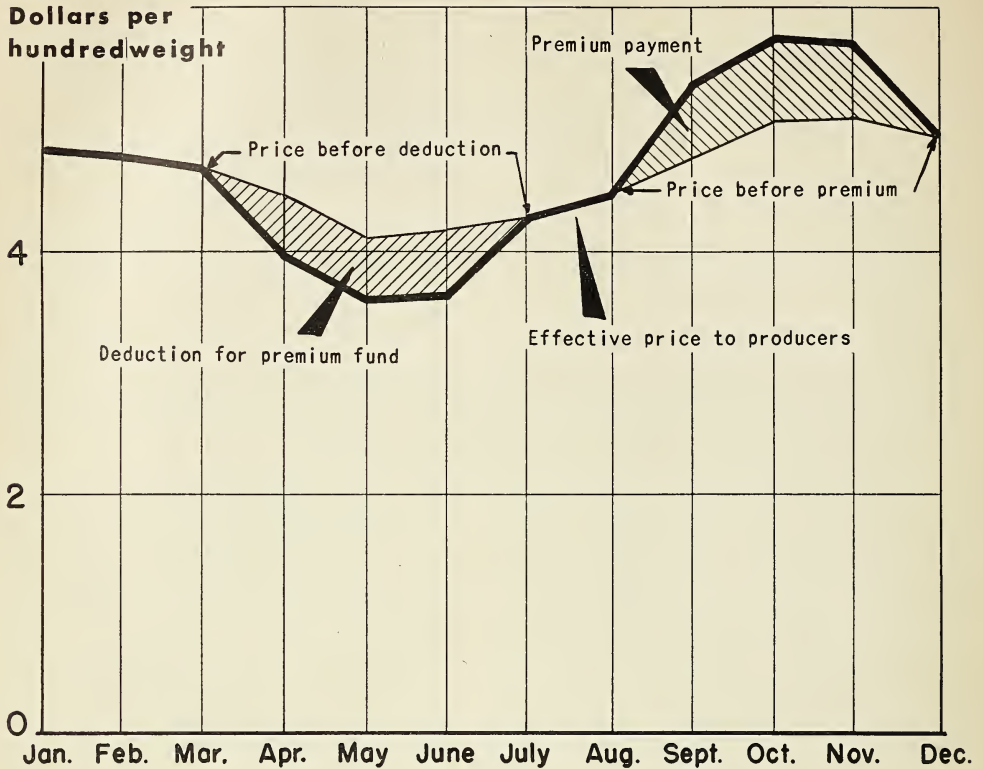
1944. Several markets have used and then discontinued the plan; for this reason it probably has not been in effect in over 20 markets at any one time.⁷

Several different names have been used for the plan, with the fall premium plan and the "Louisville Plan" probably the most common. Others include the "Level Production Incentive Plan" (Connecticut), and the take-out and pay-back plan.

These differences involve more than personal taste; some officials

⁷ The list of markets known to have used the plan includes Baltimore, Md. (discontinued); Buffalo, N. Y.; Cincinnati, Ohio; Clinton, Iowa (discontinued); Columbus, Ohio; Connecticut (all milk under State control plus some entering State from New York and Massachusetts); Dayton-Springfield, Ohio; Denver, Colo. (discontinued); Duluth-Superior, Minn.-Wis.; Indianapolis, Ind. (discontinued); Kansas City, Kans.-Mo. (discontinued); Louisville, Ky.; Nashville, Tenn. (discontinued); Omaha-Lincoln-Council Bluffs, Nebr.-Iowa; New Bedford, Mass.; Norfolk, Va.; Platte River Valley, Nebr.; Racine, Wis.; Rochester, N. Y.; Sioux City, Iowa; Sioux Falls-Mitchell, S. Dak. (discontinued); Southwest Kansas; Topeka, Kans. (discontinued); Washington, D. C.; Waterloo, Iowa; Youngstown, Ohio (discontinued).

Figure 3.—Effect of fall premium plan on price to producers



believe a particular title characterizes the plan accurately and provides a psychological advantage.

Operation of the plan can be illustrated simply, as in figure 3. The illustration incorporates a moderate seasonal variation of the blend price, deduction of 50 cents a hundredweight from April through June, and addition of this fund to the pool from September through November.

The seasonal variation of prices in this illustration was 97 cents before deductions and premiums. The fall premium provisions raised this seasonal difference to \$2.15. This difference does not accurately indicate the seasonal incentive provided, but is basic to calculation of the incentive. Computation of the seasonal incentive requires use of illustrative seasonal patterns of de-

liveries and calculation of the annual average price for each pattern of deliveries.

The mechanics and provisions of the fall premium plan are simple. Key provisions are as follows:

1. Fund accumulation periods.
2. Fund accumulation rates.
3. Fall premium periods.

Fund Accumulation Periods

Data were compiled on major provisions of plans in 12 areas. During 1957, premium funds were accumulated under these plans in different combinations of the months April through July, as shown at top of next page.

The practice has been to select 2, 3, or 4 months of flush production to accumulate a fund for fall premiums. The areas tabulated are about equally divided among 2-, 3-,

Months

Markets

April-May	District of Columbia.
April-June	Omaha-Lincoln-Council Bluffs, Nebr.-Iowa; Platte River Valley, Nebr.; Sioux City, Iowa; Southwest Kansas.
April-July	Cincinnati, Columbus, and Dayton-Springfield, Ohio, and Louisville, Ky.
May-June	Connecticut—both State-controlled supply and out-of-State supply for Connecticut markets.
May-July	Duluth-Superior, Minn.-Wis.

and 4-month periods. The fund accumulation period has been changed in several markets since the plan was established, either because of changes in the seasonal pattern or because it was decided that a better choice could be made. For example, 7 of the 12 areas tabulated had plans in 1952, and 2 of these 7 had changed the withholding months by 1957 (16, p. 8).

The withholding months certainly should be the months of flush supply. These can be determined by studying production records for the milkshed. Monthly variation of fluid milk sales also should be considered, since the purpose is to make the pattern of deliveries conform to fluid requirements and not simply to obtain the same supply in all months.

The main issue is the proper length of the fund accumulation period. Short withholding periods

limit the annual income incentive of the plan. This is a common limitation of those fall premium plans that are in effect.

The tabulation (bottom of page) shows the greater incentive provided by accumulation and premium periods of 4 months rather than of 2 months.

A, the illustrative fall peak producer, received \$0.183 a hundredweight more than D, the high spring peak producer, with 2-month accumulation and premium periods. Lengthening these periods to 4 months each increased the difference to \$0.232 a hundredweight.

Fund Accumulation Rates

The rate of the premium fund deduction is a second major provision; it varies among markets. Some rates are stated as a percentage of the blend price; others as an

Pattern	2-month period	4-month period
	Amount per hundredweight that annual average price was above price to high spring peak producer	
A—fall peak	\$0. 183	\$0. 232
B—equal fall and spring	. 125	. 156
C—moderate spring peak	. 077	. 096
D—high spring peak		

amount per hundredweight, as shown at bottom of page.

Percentage rates of accumulation are believed by many to automatically regulate the incentive system with year-to-year changes in the price of milk. They assert that a 30-cent accumulation rate may be adequate when the blend price is \$4 a hundredweight, but is not adequate at \$6. This probably is true and the percentage system seems satisfactory. Note, however, the assumption that the necessary seasonal incentive is in proportion to the market price of milk.

There is a practical limit to the amount of incentive that can be provided by a fall premium plan. It usually is not satisfactory to reduce the price to Grade A producers during fund accumulation months below the competitive price of milk for manufacturing. Jones, producing Grade A milk, may be resentful if his neighbor Brown, not qualified for Grade A, receives a higher price. This problem is most serious in such States as Minnesota, Wisconsin, Iowa, and Illinois, where the premium for Grade A milk over milk for manufacturing

is not large on an annual basis and may be very small during flush production months.

For example, an illustration was worked out in which a fall premium deduction of 45 cents a hundredweight would have reduced the blend price received by producers to the Class II price. These computations involved a Class I premium over Class II of 90 cents a hundredweight and a fairly "typical" seasonal pattern of total deliveries. Class I utilization was 76 percent of deliveries in October, but only 50 percent in June. This cut the 90-cent Class I premium in half, giving a blend price only 45 cents over the Class II price (assumed to be the competitive price of milk for manufacturing). A deduction rate of 45 cents a hundredweight would be the practical limit in this marketing situation.

Fall Premium Period

From 2 to 4 fall months are chosen to pay producers the fund accumulated. These are the months when deliveries usually are lowest in relation to needs for fluid uses.

<i>Markets</i>	<i>Deduction rate in 1957</i>
Duluth-Superior, Minn.-Wis.; Omaha-Lincoln-Council Bluffs, Nebr.-Iowa; Platt River Valley, Nebr.; and Sioux City, Iowa.	8 percent of pool value.
Louisville, Ky.....	12 percent of average basic formula price of preceding calendar year.
Cincinnati, Ohio.....	April—30 cents; May and June—35 cents; July—20 cents.
Dayton-Springfield, Ohio.....	April—20 cents; May and June 35 cents; July 30 cents.
Columbus, Ohio.....	35 cents.
District of Columbia.....	45 cents.
Connecticut (State-controlled) and Southwest Kansas....	50 cents.
Connecticut (out-of-State supply).....	60 cents.

Premium period

Markets

July-September	Connecticut (out-of-State supply).
July and September	District of Columbia.
August-October	Southwest Kansas.
September-November	Omaha-Lincoln-Council Bluffs, Nebr.- Iowa; Platte River Valley, Nebr.; and Sioux City, Iowa.
September-December	Cincinnati and Dayton - Springfield, Ohio; and Louisville, Ky.
October-November	Connecticut (State-controlled supply).
October-December	Columbus, Ohio; and Duluth-Superior, Minn.-Wis.

The months used in 12 areas in 1957 are shown above.

In all these cases except Dayton-Springfield, Ohio, the fund was evenly divided for payment in the premium months. At Dayton-Springfield, the fund was divided 20 percent each for September and December and 30 percent each for October and November.

Eight of the 12 areas tabulated had either 3 months of deduction and 3 premium months or 4 months each.

It is dangerous to say the fund accumulation is "repaid" to producers delivering milk in the fall. The "individual ownership stumbling block" is involved in this issue; it is discussed on pages 36-37.

It is most logical to use the same number of premium months as deduction months. Thus the premium *rate* per hundredweight usually will be more than the *rate* of deduction. Using *fewer* premium months than deduction months results in an extremely high premium *rate*, but for a short while.

The hazard of this situation is that additional farmers and plants may try to participate in the pool for just this short while. The result might be a convincing case of the frequently charged "raiding the pool." Using the same number of premium months as deduction

months is an acceptable compromise. This usually results in a seasonal price swing large enough to encourage a shift to fall production but not large enough to bring in so much milk the problem would be a fall surplus rather than a shortage.

What Determines Premium Rates?

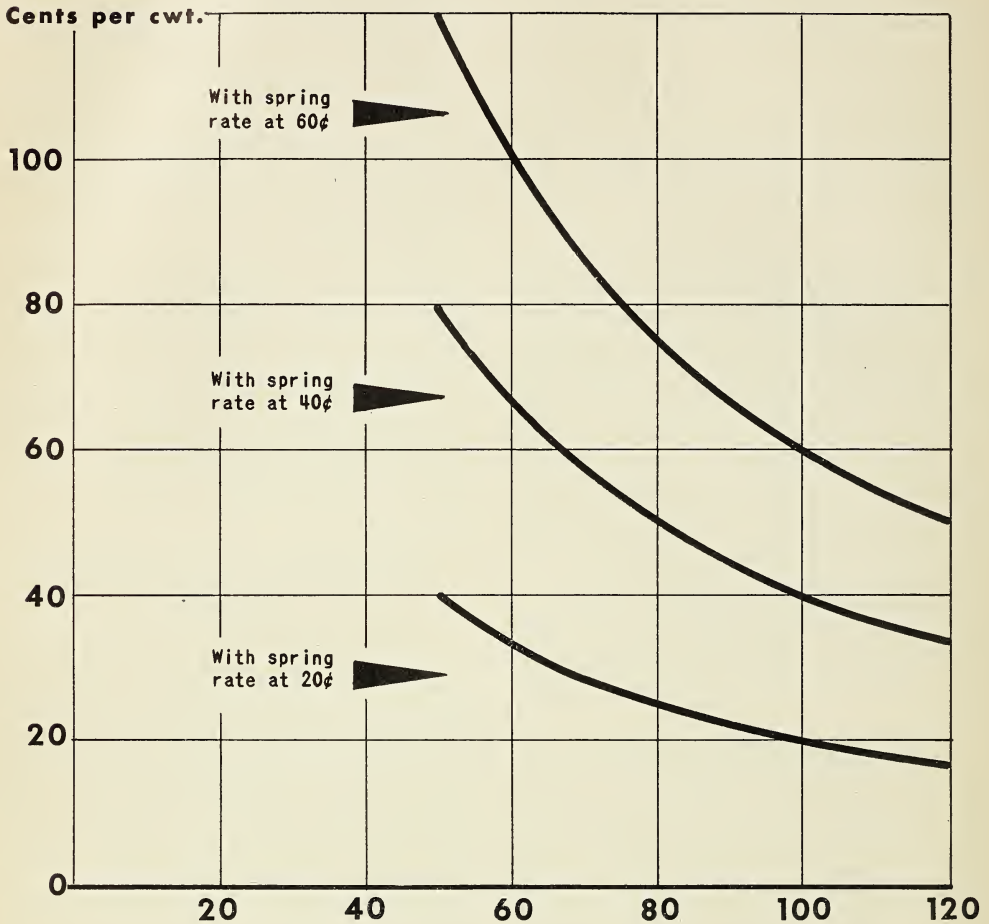
Greater deduction rates result in greater premium rates.⁸ Preceding discussion also has made it evident that a low ratio of deliveries in fall months to spring deliveries increases the fall rate of premium payment. Simply stated, a fund accumulated by taking 50 cents a hundredweight on a million pounds of milk can be repaid at a rate above 50 cents when distributed on 800,000 pounds of milk.

The relationship between the spring rate of deduction and the fall premium rate is illustrated in figure 4. Spring rates of 20, 40, and 60 cents a hundredweight were used. Several points are illustrated:

1. With a given spring rate of deduction, say 40 cents, the fall payment rate varies inversely with changes in the ratio of fall to spring deliveries. If fall deliveries are

⁸ Some relationships discussed in this section can readily be expressed in mathematical equations. See (4, pp. 7-11.)

Figure 4.—Fall premium rate to milk producers according to fall/spring receipts ratio and spring rate of deduction



Market fall receipts as percent of spring
(Adapted from figure 1, Marketing Research Report No. 63, United States Department of Agriculture, May 1954)

greater than spring deliveries (ratio more than 1 to 1), the fall payment rate becomes less than the spring deduction rate.

2. The fall payment rate increases less rapidly as the ratio of fall to spring receipts increases.

3. Doubling the spring deduction rate also doubles the fall payment rate.

Points 1 and 2 indicate that the premium plan offers the greatest incentive for fall production when the market is farthest from even

production and that the incentive decreases as the goal of even production is approached. The plan does not fail, however, and total returns to producers are not reduced if fall deliveries should exceed spring deliveries. Point 3 indicates that the incentive provided by the plan may be strengthened by a sharp increase in the spring rate of deduction.⁹

⁹ Much of this material taken from (4, p. 7).

Gain or Loss to a Producer

The producer's gain or loss from the premium plan depends on whether his ratio of fall to spring deliveries is greater or less than for the market as a whole. He gains if he has a higher percentage of fall to spring deliveries and loses if he doesn't. This statement takes into account the premium plan alone and does not take account of any benefit to the market as a whole from reduced seasonal variation.

The factors that determine a producer's gain or loss from the plan are shown in figure 5. This figure may be helpful to the fieldman. It can easily be reproduced, replacing the several sloped lines with only one at the exact market ratio in his own market.¹⁰ (4, pp. 7-11).

The chart can be used as follows in talking with farmers: Let us say the market ratio of fall to spring deliveries the preceding year was 80 percent. A fieldman might be talking with Brown who delivered only 60 percent as much milk during the premium period as during the spring deduction period of 1957. Looking above 60 percent on the bottom line of the chart, the 60 percent line intersects the sloped line corresponding to the market ratio of 80 percent at 75 percent, on the left vertical axis. This shows that Brown received 75 percent as much from the premium fund as was deducted from the fund. Thus

¹⁰ To reproduce the chart, first divide total deliveries to the market during the last fall premium period, let us say 1957, by total deliveries during the 1957 spring deduction months. Divide 100 by the percentage ratio just obtained. Mark this point on the vertical line grid through 100 on the bottom horizontal line of the figure. Then simply draw a line from the zero point through the point just marked

the figure shows that if he had delivered as much milk in the fall as in the spring, his fall payment would have been 125 percent of the amount deducted in the spring on his deliveries.

Investment of Premium Funds

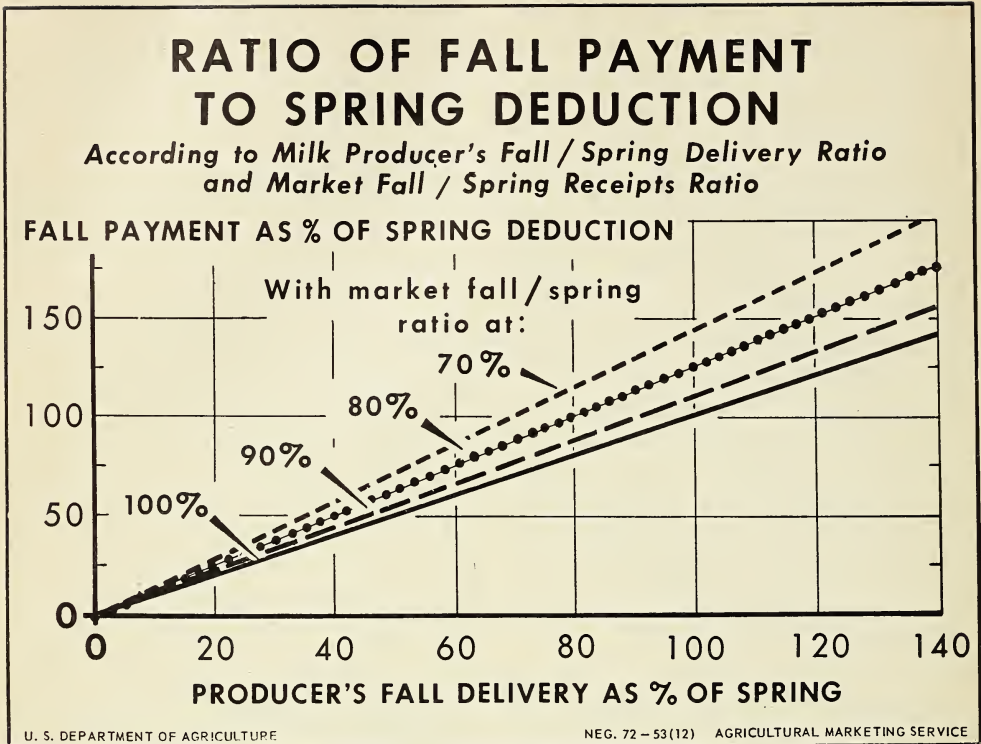
In 1952, only 2 of 11 markets earned interest through investment of premium funds (16, p. 9). More recent data were not obtained. The fund deducted in the spring can be invested for several months in such things as short-term United States Treasury obligations. The interest earnings may appear small, but the amount may total several thousand dollars. Note that rates on short-term Treasury obligations were in the range of $2\frac{1}{2}$ -3- $3\frac{1}{2}$ percent in the mid-1950's. It seems, therefore, that the size and effectiveness of the fund can be increased by entirely prudent, risk-free investment.

Methods of Premium Payments

There are two distinct methods of making premium payments. In 1952, special fall premium checks were sent to producers in five markets. Each producer in these markets received two checks for each premium month. This method continues in use in a few markets. One check covers the producer's share of the current milk pool, and the other covers his share of the fall premiums paid. Premium checks are plainly marked. Also, in these markets, announced blend prices do not include premiums.

The more general practice in 1957 was simply to add money from the premium fund to the pool. The fund thus was included in the blend price and no special premium checks were used.

Figure 5.



The choice between these methods is a question of psychology. Some observers say it is more sound to include money from the fund in the regular blend price. This reminds producers the fall premium plan is simply a seasonal pricing device. Advocates of this method also assert that under it, producers are less likely to become confused over the question of equity in the fund.

Others say the separate, plainly marked check is a valuable educational device. The check received for fall months reminds farmers of their incentive to deliver milk during those months, and does this more effectively than a higher blend price alone. This and other questions, however, call attention to the need for carefully informing producers on all phases of the incentive program. They should know an in-

centive plan exists, its purpose, and its main provisions.

Farmer Attitudes Toward Plans

Surveys of farmer attitudes toward a fall premium plan have shown that a majority of those interviewed favored it. At the same time, serious problems have arisen in some markets using the plan and have led to its discontinuance. A survey of farmers in those situations would have shown a majority of farmers with unfavorable attitudes.

Of three surveys showing favorable attitudes toward the fall premium plan in their market, two were in the Louisville, Ky. milkshed at different dates, and one was in the Connecticut milkshed. The second Kentucky survey, in 1949, included 190 producers. They were

asked first whether there should be a program aimed at more uniform seasonal production and then were asked how this could be accomplished. The replies showed 116 recommended the fall premium plan, 4 favored a spring-to-fall differential, 2 favored a base-excess plan, and 68 were undecided or had no answer (20, pp. 38-40).

Over three-fourths of 100 members of Connecticut Milk Producers Association, Hartford, interviewed in late 1954, were fairly satisfied with the fall premium plan in their area. Several farmers suggested specific changes in the plan, called the Level Production Incentive Plan (11, p. 29).

The same conclusions as those for attitudes toward base-excess plans seem appropriate. Dairy farmers will support a soundly designed and well-administered fall premium plan that they understand. One further qualification is necessary. A fall premium plan may not be acceptable in a milkshed adjacent to another that has a different seasonal price plan and a fully adequate supply of milk. Under these conditions, the market with a fall premium plan may be almost overwhelmed with milk from adjacent areas during the premium period. Experience in the Clinton, Iowa, market illustrates the importance of relationships between adjoining and intermingled milksheds (23, pp. 41-42, 150-57)

Advantages and Problems

Advantages and problems that have been claimed for fall premium plans will be presented in the same way as for base-excess plans. Again, these views have been gathered from many sources, and there will

be little evaluation of most points (16, pp. 13-15; 20, pp. 4-5; 18, p. 36; 19, p. 36; 13, pp. 130-32; 9, p. 11).

Advantages

The fall premium plan provides seasonal incentives for producers without causing handlers to vary resale prices seasonally. The contrast here is with seasonal variation of class prices, not with the base-excess plan. Distributors frequently state that it is a good merchandising policy to keep the price of milk to consumers the same the year round. The plan makes it easier for distributors to use this policy although producers receive a seasonally variable price.

Fairness.—The plan provides each producer a reward in relation to his contribution. A producer receives a higher annual average price for a large proportion of fall to spring deliveries than for a high spring peak. The plan provides the same price to all producers for each month. Farmers usually accept this as equitable, except for questions which will be discussed in relation to the problem of pool "raiding" and individual ownership.

The plan provides incentives, both positive and negative, with each producer free to respond to or to ignore them, as he sees fit.

A special advantage over the base-excess plan is that the fall premium plan provides a more definite incentive for a fall peak of deliveries. The incentive for the individual farmer to deliver more milk in the fall does not stop when his fall deliveries are as great as in the flush season, as occurs under the base-excess plan. The fall premium plan reduces the spring price and

increases the fall price to a farmer on all milk delivered.

Simplicity.—The entire plan can be stated in a few sentences. One result is that the plan is easy to administer; another is that the plan is easy to explain to farmers. It may be difficult to get them to know all implications of this or another seasonal price plan, but the approach is simple and provisions are few. These qualities help in developing understanding and confidence.

Flexibility.—The first evidence of flexibility in the plans is that incentives are automatically reduced slightly when the market pattern of receipts becomes more even.

Further flexibility can be provided by fixing fund accumulation rates as a percentage of a basic price series, rather than at a set amount. This probably is better than a set amount, year after year, although price and cost levels may change.

The timing and indeed the amount of incentive provided can also be changed easily. The months of deduction and payment, and the amount of deduction, largely control the character and severity of the plan.

Definiteness.—The plan is specific and the incentive provided can be fairly well predicted. These points are advantages over the usual administration of seasonal variations of class prices. The definiteness gives farmers a sound basis for production planning for several years ahead. On this point, it is desirable to decide on changes in the plan 2 years in advance, if possible. This gives farmers some time to change their plans and practices accordingly.

Problems

The Individual Ownership Stumbling Block.—The objection of established producers to new producers sharing payments from the fund has been the greatest problem of fall premium plans. Established producers often call this “raiding” the fund. Indeed, the entry of a large number of producers just at the start of the premium period and their return to another market shortly after the end of fall premiums would shake the confidence of most persons.

Note that the entire discussion of fall premium plans has not referred to the fund deducted in the spring being repaid or refunded in the fall. It is simply paid. Repayment or refunding would imply that it goes to people from whom it was deducted. It was not deducted from payments to individuals, but was merely taken from the pool. Individual producers had not established any ownership. In the specified fall months, it is added to the pool or is paid in separate checks. The fund cannot be paid to each farmer in proportion to his spring deliveries; that would accomplish nothing. It is paid to producers on their fall deliveries at a specified, uniform rate per hundredweight.

Managements of cooperatives and other officials in markets using fall premium plans have tried sincerely to establish this reasoning. But they have not been fully successful in several cases. The pool raiding argument has helped destroy the fall premium plan in several markets, apparently including Clinton, Iowa, Kansas City, Mo.-Kans., Topeka, Kans., Denver Colo., and Sioux Falls-Mitchell, S. Dak.

There have been proposals to

limit fall payments from the fund to farmers who delivered at least a specified amount of milk or who made deliveries a specified portion of the deduction period. For example, it might be provided that payments would be limited to producers who delivered milk to the market at least 30 of 90 set-aside days. There are a number of objections to this proposal—too lengthy to describe here. A legal objection may be sufficient. Would all producers be treated the same with such a restriction on payments? (24).

The fall premium plan has generally proven valuable and effective, however. Possibly the minor economic objections should be overruled and a solution found to legal questions that may be raised about changing the plan by placing restrictions on payments to "new producers." This would pave the way for restrictions that would prevent what tends to be called "raiding" the fund.

Meanwhile, the more nearly ideal approach is to educate farmers to understand the fall premium plan. It is a seasonal pricing plan operating through funds deducted from overall market receipts and distributed on all receipts in other months. The fund is not deducted from individual payments and then repaid. No individual has personal equity in the fund. The plan has individual application in incentives it provides, but mechanics of the plan apply first to pooled figures.

The issue of individual ownership and "raiding" concerns entirely the fairness of distribution of proceeds from milk sales. Beyond raising a question, it further implies a certain conclusion about

what is fair distribution, and many other persons would not accept that conclusion.

Besides fairness, the other main concern of seasonal pricing is to correct a marketing problem—seasonally variable receipts versus comparatively steady fluid requirements. In fact, does fairness have any meaning if it does not consider the full problem?

What is needed to correct the marketing problem? The need is to obtain higher total fall receipts compared to those in the spring. Total is the vital word. It is not necessary for every farmer to change his pattern of deliveries in the same way. In fact, new producers entering the market only temporarily in the fall help establish the desired seasonal pattern. If the only goal is to establish a desired seasonal pattern, the new producers in many cases serve the market as well as established producers who change their pattern. It begins to appear from this line of reasoning that farmers who object to sharing the fund with new producers actually want production control rather than seasonal pricing. It becomes most difficult to criticize the objecting farmers, however, if there is an ever-increasing surplus of milk.

In summary, the issue of individual ownership and "raiding" is a major problem. It can best be solved, or at least controlled, by seeing that farmers are well informed. Some ideas for limiting payments to new producers may be acceptable as a compromise, and if legal objections can be overruled. Otherwise, the issue of individual ownership will continue to destroy fall premium plans in times of

stress unless there has been a fully adequate and perhaps superior job of education. The problem may destroy the plan in markets with poor educational programs, even in the absence of marketing stress.

Limitation on Incentive.—A second problem is that the incentive which can be provided is limited in markets of the Midwest. The premium of Class I milk over milk for manufacturing is small. Therefore

a large deduction in spring months for the premium fund would reduce the blend price below the price of milk for manufacturing. This would not necessarily damage the market; other things remaining equal, it would help the market for some producers to shift seasonally to manufacturing milk outlets. But such a low spring price would create, at the least, a psychological problem.

Seasonal Variations of Class Prices

MOST discussion of seasonal pricing in recent years has been devoted to base-excess and fall premium plans. This underrates the importance of seasonal variations of class prices. Not only is it the only plan in many markets; it is used in combination with the base-excess plan in others.

It was used separately in over one-third of the Federal order markets in 1957, and in combination with base-excess plans in most of the markets with that plan. Indeed, under terms of the Federal order at Duluth-Superior there is a fall premium plan and also a seasonal variation of the Class I price of \$1 over Class II from May to August and \$1.15 in other months (25, p. 703).

By seasonal variations in class prices, we mean something beyond seasonal variation of basic formula prices. It is accomplished by setting the Class I price at a higher difference above the basic formula in the fall than in the spring. It is desirable to use the words difference and differential, rather than premium, in discussing seasonal variation of class prices. This helps avoid confusion with the fall premium plan. (If fluid cream and

other products are in Class II, seasonal variations may apply to Class II as well as Class I. Class I is used for convenience in discussing these variations.)

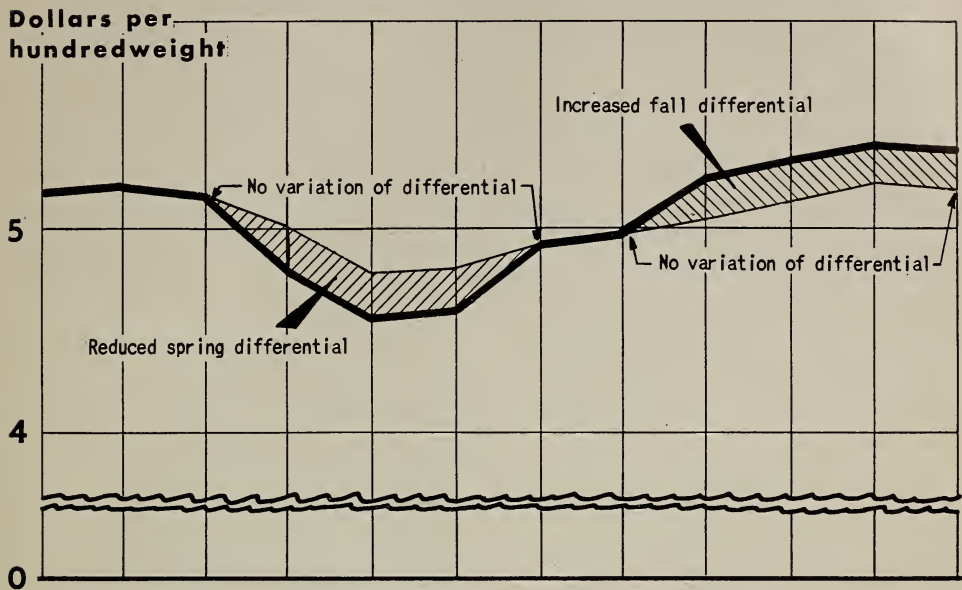
Figure 6 illustrates seasonal variation in class prices. Part I shows the effect on the Class I price, reducing the price in specified spring months, and increasing it in specified fall months. These increases and decreases are in relation to a basic formula price that itself varies from month to month. Therefore when the basic formula price is lower in the spring than the fall, seasonal variation of the differential adds to that price to provide a larger seasonal incentive.

Part II of figure 6 shows the effect on blend prices to producers. Seasonal variations of utilization, variations of the basic formula price, and variations of the Class I price differential all add up to set the blend price. Data used in this illustration started with a basic price 44 cents higher in November than in May. With a 40-cent seasonal variation of the Class I price differential, the blend price was \$1.28 higher in November than in May.

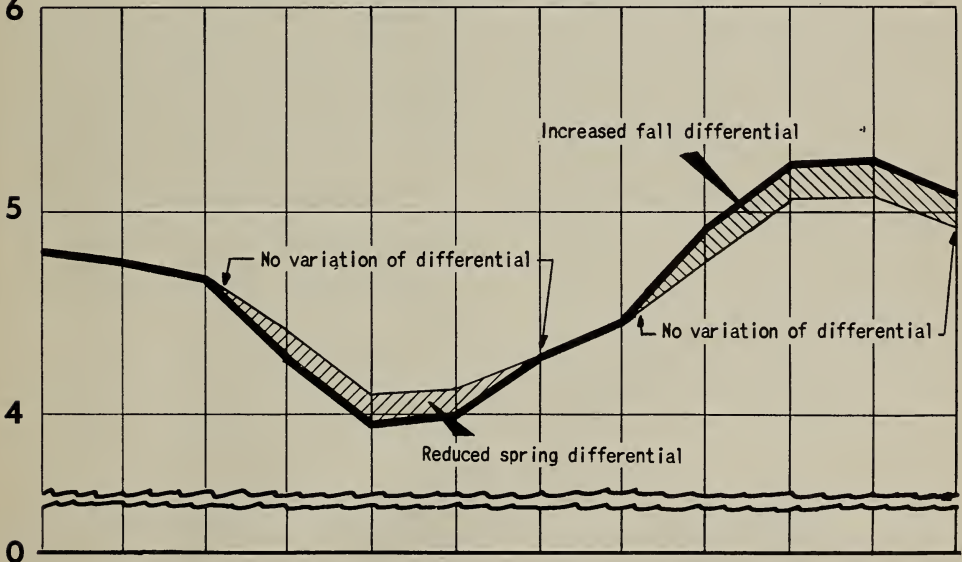
This approach to seasonal pric-

Figure 6.—Operation of seasonal variation of class prices

Part 1: Effect on Class 1 price



Part II: Effect on blend price



Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

ing is not as formal as are base-excess or fall premium plans. It follows that there are few provisions to outline and discuss.

Extent of Variations

The extent of seasonal variation of the Class I price varies con-

siderably. In Federal order markets in early 1957, it varied from a minimum of 15 cents at Duluth-Superior (20 cents in several markets) to a maximum of 90 cents per hundredweight in at least three markets. The five Massachusetts orders (Boston is the principal mar-

ket), plus New York, Philadelphia, and Wilmington obtained seasonal incentives by multiplying the formula prices used by suitable percentages for each month.

Seasonal variations provided in the Cleveland order illustrate a common pattern in markets not using a percentage variation. The Class I price was \$1.40 above the basic formula from February to July 1957, and \$1.85 above from August to January. This clearly provides a seasonal price incentive in addition to the base-excess plan that also applies. Other markets have seasonal variations that are similar in timing and extent, and have no base-excess or other plan in addition.

It is necessary to have a large seasonal variation to provide a meaningful seasonal incentive. Comparison with other types of price plans shows that the incentives provided by seasonal price variations have in most cases been modest. This caution, conservatism, or hesitancy has been a weakness in use of these plans. It sometimes appears that markets not sure they want seasonal incentives adopt seasonal price variations, rather than the more formal fall premium and base-excess plans.

Seasonal variation of class prices can be used boldly and with determination. Marketing officials must be sure they want seasonal incentives, be willing to work hard to get producers to accept them, and intend to stick with them.

Timing Increases and Decreases

There may be 2, 3, 4, or more changes during the year in the Class I price differential. At the minimum, there is a higher differential

in the fall-winter season than in the spring and early summer. Figure 6 illustrated four changes a year, with an average differential in winter and summer, a higher differential in the fall and a lower one in the spring.

Much of the thinking that applies to selecting deduction and premium periods for a fall premium plan also applies to timing increases and decreases of the Class I price differential. The spring months of flush supply are the months when the differential is lowest. The fall months, when supply is shortest in relation to requirements, have the greatest differential.

There is much to say for at least one intermediate step between, if the range from the high to the low differentials is substantial. This has the effect of saying to farmers, "There is a serious surplus situation in some months; the surplus is less serious in winter and summer months before and after the flush; and there tends to be a shortage in the fall." The intermediate step acknowledges a gradation between the seasonal flush and the shortage season.

New York Seasonal Provisions

The expanded New York Federal order, effective August 1, 1957, is significant because of the amount of milk included in this pool. In January 1958, the New York pool included 27 percent of all milk pooled under 68 Federal orders. The principal seasonal provision for 1957 and 1958 was for seasonal variation of the Class I price. There were also smaller seasonal adjustments of the Class II and Class III prices. The Class I price formula was to be adjusted by the following percentages:

Month	Adjustment factor (percent)
January	1. 05
February	1. 03
March	1. 00
April	. 94
May	. 88
June	. 88
July	. 95
August	1. 00
September	1. 04
October	1. 07
November	1. 09
December	1. 07

This arrangement made the amount of the Class I price seasonal adjustment depend on the level of the formula. For example, at a formula price of \$4.75, the seasonal adjustment itself would change the final Class I price \$1 between June and November.

The New York order also pointed to a careful study of a base-excess plan for application after 1958. Data were to be compiled under the order to make possible study of base-excess plan provisions.

Boston Seasonal Provisions

Boston is a second large market with seasonal provisions that deserve separate mention. Boston pricing provisions influence, if not dominate, milk pricing throughout the New England States.

Computation of the Boston Class I price involves successively, an economic index, supply-demand adjustment, seasonal adjustment factor, bracketed prices, and a contraseasonal provision. The contraseasonal provision provides that the price for November and December shall not be lower than the price for the immediately preceding month. The seasonal adjustment factor in early 1957 is shown in the following tabulation.

Month	Adjustment factor (percent)
January and February	104
March	100
April	92
May and June	88
July	96
August	100
September	104
October to December	108

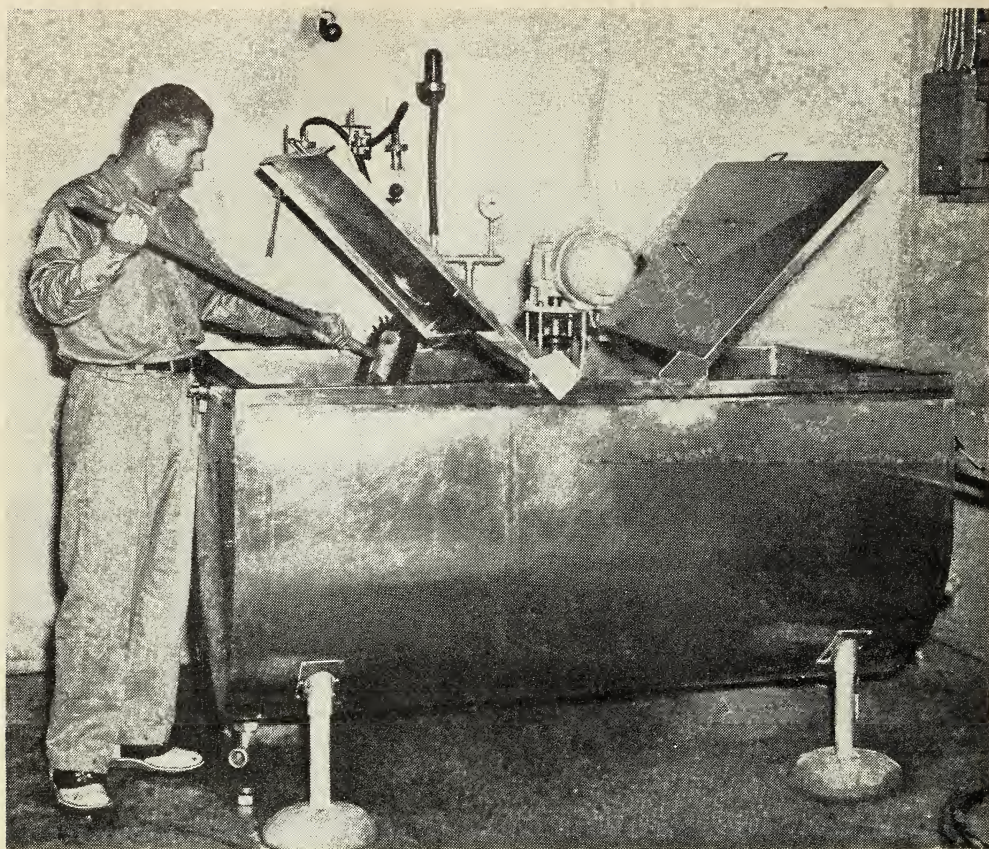
The seasonal adjustment thus involves eight seasonal changes in the Class I price during the year. At price levels in 1957, the seasonal adjustment provided for a Class I price which was about \$1 higher in October, November, and December than in May and June.

Providing Maximum Incentive

The number of months at the seasonal high and seasonal low differentials and the range of those differentials are keys to the incentive provided by seasonal variation of class prices. One example was computed to study this relationship. Incentives provided by 2 months at a low differential and 3 months at a high differential were compared to incentives of 4 months low and 4 months high. In this specific case, seasonal incentives were increased about 8 percent by the greater number of months. It is believed that comparable but slightly different results would be obtained by using different data for illustration.

Advantages and Problems

Advantages and problems that have been claimed for seasonal variations of class prices will be presented in the same way as for base-excess and fall premium plans. These views are from several sources, and there will be little evaluation of most points (9, p. 11; 13, pp. 130-32; 19, p. 38; 22, pp. 22-24; 6, pp. 75-78).



Some observers believe the advent of bulk handling has stimulated interest in maintaining an even flow of milk.

Advantages

The seasonal variation of Class I prices may stimulate larger fluid sales during the flush than the shortage season. This would be an advantage over the fall premium plan, wherein price movements to producers and to handlers are not the same. Much economic analysis casts doubt on this effect, indicating milk consumption does not respond much to short-time changes in the price. Some advocates of fall premium plans further state that seasonal changes in retail milk prices tend to reduce annual fluid consumption.

Seasonal changes in prices to producers help avoid too great a spread between prices of fluid milk and

milk for manufacturing during the flush season. A large price difference during this season attracts additional milk to the pool. Some additional milk may enter the pool unless pool plant requirements are restrictive, and thus make the seasonal surplus problem worse. A small price difference, or a price seasonally lower than at manufacturing plants, may even be regarded as a benefit by driving milk away from the pool.

Seasonal variation of class prices is simple to understand and very easy to administer. Such straightforwardness and simplicity are appealing to many persons.

Seasonal variation of class prices starts new producers out on the

same basis as established producers. There is no going back to their record of the previous fall, as in the base-excess plan. A new producer starts out even with others in May, August, October, or other months.

Problems

The Stability Stumbling Block.—There is a perennial tendency to seek postponements and cancellations of seasonal price declines in the spring. High production costs and especially feed shortages are cited and the conclusion reached that this month or this year the scheduled reduction must be suspended, or dairymen will suffer undue losses and hardship.

Frequent changes in the seasonal pattern of prices, however, seriously weaken the effectiveness of seasonal price provisions. (It is essential in this discussion to distinguish the idea of seasonal variation of prices from the idea of changes in the seasonal price pattern.) Changes in the pattern damage both the effectiveness and fairness of the seasonal provisions. To reduce seasonal variations in the market, many producers must change their practices. A few farmers may change their practices to "help serve the market." But many more are influenced by the prices they expect. The point here is that farmers often have little basis for knowing what will be the seasonal pattern of prices next year or the following year. They therefore may have little reason to plan for fall production.

As for fairness to producers, changes may deprive the even producers or the ones with a fall peak of deliveries of the highest annual

average price. This is unfortunate whether the desired patterns are the result of planning and of things done on the farm that cost money and effort or simply of accident. It seems worse, though, to deprive producers of a money reward they spent money and effort to obtain.

At the minimum, frequent changes in the seasonal pattern of differentials reduce producers' interest in seasonal pricing. There is some tendency, even among careful observers and marketing officials, not to regard seasonal changes of class price differentials as a systematic seasonal price plan. One reason seems to be that the changes are not used consistently.

These conditions rather than inherent weaknesses appear the most serious stumbling block of seasonal variation of class prices. The need is to apply seasonal variations with greater consistency, make the incentives large enough to be meaningful, and make producers aware of the incentive plan. Few markets with seasonal variation of class prices have devoted significant educational programs to explaining and selling these seasonal incentives. Producers need to be made aware of seasonal price variations as a consistent plan that provides them a certain seasonal differential and thus a reliable basis for planning.

Other Problems.—The very simplicity of seasonal price variations may be a disadvantage in conducting an educational program. There are few provisions to repeat constantly and emphasize. The mechanics of the base-excess and fall premium plans draw attention to the seasonal problem. Thus, the simplicity of seasonal price variations may not be much of an advan-

tage, after all. Rather, officials may have permitted the simplicity to trap them into failure to keep producers aware of the problem and of incentives.

Wide seasonal differences are necessary to provide a sufficient seasonal incentive to cause an important change of production plans on many farms. The negotiations to establish such a differential pattern are difficult.

Wide seasonal variations in the

Class I price are sometimes said to result in dissention, price wars, and other complications that are incompatible with a stable market. These two paragraphs about wide seasonal variations pertain to use of seasonal variations alone, rather than in addition to a base-excess plan. The difficulties mentioned are not serious with the more moderate seasonal swings that are used in many markets in addition to a base-excess plan.

Seasonal Incentives of Other Price Provisions

SEASONAL incentives are provided by pricing mechanics other than the formal seasonal pricing plans. Seasonal effects of these additional pricing mechanisms are largely incidental to their other purposes. In many markets, however, they provide more than half the total incentive for seasonal adjustment of production and thus merit separate consideration in any discussion of the subject.

Variation of Basic Formula

Prices of butter, cheese, condensed milk, dry milk, and other dairy products usually vary seasonally. Since in most markets prices of all classes of milk are tied to prices of such manufactured products, the price for each class starts out with a seasonal variation. To be sure, this element was small for several years prior to 1957 and may continue so. The recent small seasonal variation of basic prices resulted from the mechanics of the dairy price support program, since the price structure rested almost constantly on that floor, and no seasonal pattern has been provided

in the support price for milk and butterfat.

The Chicago butter market is one of several basic price series used and provides an illustration. Table 4 shows that from 1947 to 1957 the butter price reached a higher point in the fall than the spring except in 1948. The fall increase was only a few percent each year from 1952 to 1956; nevertheless where butter prices were used in figuring prices of market milk, it provided part of the incentive for more fall milk relative to spring.

Incentives Through Changing Utilization

Seasonal variation in the blend price is inherent in the class pricing system. This occurs since a higher percentage of fluid utilization in the fall than the spring raises the fall blend price. This effect of use classification pricing of milk was partially illustrated by figure 6.

The effect of increasing the percentage of milk received that is used for bottling is a matter of arithmetic and is illustrated in table 5. For example, if Class I milk is \$1 higher than that in Class II,

Table 4. Average wholesale price of grade A (92 score) butter at Chicago 1947-56
[Cents per pound]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1947-----	66.2	69.0	69.0	61.1	60.4	63.0	68.0	74.8	79.2	70.1	79.9	86.3
1948-----	84.1	81.7	79.0	80.5	79.6	80.9	78.8	75.3	71.8	63.3	62.7	64.8
1949-----	63.2	62.8	60.3	59.0	58.9	58.8	59.9	61.9	61.9	62.1	62.0	62.2
1950-----	61.3	62.1	60.1	59.8	59.8	59.9	60.0	60.7	62.7	63.2	64.0	66.6
1951-----	69.8	68.9	66.7	66.5	69.5	68.2	66.7	66.4	67.0	69.9	73.0	78.0
1952-----	79.3	83.5	73.0	70.0	68.4	68.8	71.0	72.8	72.6	71.0	69.2	67.1
1953-----	66.9	66.9	66.6	65.1	65.1	65.1	65.1	65.1	66.1	67.4	66.2	65.5
1954-----	65.3	65.3	64.5	57.3	57.1	56.9	56.9	57.0	58.4	59.1	58.9	59.6
1955-----	57.4	57.4	57.4	57.3	57.1	57.1	57.1	57.3	58.0	57.6	57.9	57.7
1956-----	57.4	57.4	57.4	58.3	59.2	59.1	59.2	59.5	60.3	60.8	61.9	59.9
1957-----	59.4	59.4	59.4	59.4	59.4	59.4	59.4	---	---	---	---	---

Source: Dairy Statistics, U. S. Agricultural Marketing Service Statistical Bulletin 218, October 1957, table 268.

it is worth 10 cents a hundredweight to get 80 percent of the milk used in Class I in the fall, compared to 70 percent in the spring. What happens is simply that the lower Class II price is less of a drag on the blend price, since less milk is in Class II.

The table shows that the seasonal price increase provided depends on the price difference between fluid and surplus uses, as well as on how many percentage points Class I use increases seasonally. The effect is twice as great at a \$2 differential of class prices as at \$1. Construction of the table assumes that price differentials do not change. Changes in differentials, under actual market practice, are in addition to the seasonal effect of changing utilization, and do not destroy it.

Supply-Demand Adjusters

This adjustment provision was included in the terms of almost two-thirds of the Federal Orders in 1957. The supply-demand adjustment could be used to systematically raise and lower prices seasonally.

These provisions apparently were not used as part of the seasonal pricing provisions, however. It would require an intensive study to determine the full seasonal effects of all the supply-demand provisions in effect.

Table 5. Fall increase in blend price resulting from specified increases in percentage points of milk used in Class I¹

Price difference between Class I and Class II	Percentage points of increase from spring to fall				
	5	10	15	20	25
	Fall price increase: Cents per hundredweight				
\$0.50	2.50	5.0	7.50	10	12.50
.75	3.75	7.5	11.25	15	18.75
1.00	5.00	10.0	15.00	20	25.00
1.25	6.25	12.5	18.75	25	31.25
1.50	7.50	15.0	22.50	30	37.50
1.75	8.75	17.5	26.25	35	43.75
2.00	10.00	20.0	30.00	40	50.00
2.25	11.25	22.5	33.75	45	56.25
2.50	12.50	25.0	37.50	50	62.50

¹ Data apply only where there are 2 use classes.

The supply-demand adjustment provisions of several orders do have a degree of seasonality. But even these, with the possible exception of Toledo, Ohio, did not in 1957 qualify as part of a definite, planned, consistent seasonal incentive plan. The 1957 provisions of the following orders may be studied by those interested: Knoxville, Tenn., Memphis, Tenn., St. Louis, Mo., and Toledo, Ohio.

Supply-demand provisions may indeed offset part of the seasonal incentive provided by deliberate seasonal pricing provisions. For instance, supply-demand provisions at

Detroit, Mich., resulted in a greater price reduction (minus adjustment) in the fall of 1956 and 1957 than the spring of these years. This occurred since total deliveries in the fall of these years were higher relative to spring deliveries than the relationship when supply-demand provisions were written. To this extent, supply-demand provisions at Detroit were not in line with current conditions. These comments do not bring out the cause of the change in seasonal pattern; they are only statements about the pricing results of certain supply-demand provisions.

Markets Without State or Federal Orders

IN discussing the separate seasonal plans, there were frequent comments about special problems in markets not under State or Federal control. Some of the needs under this situation may be discussed separately.

No special problem arises if nearly all the milk in the milkshed is purchased under the same plan. An exceptionally strong producers' bargaining association usually is necessary to establish such a uniform buying plan. The voluntary interest and cooperation of handlers of nearly all the milk is a clear benefit in establishing a uniform buying plan, including seasonal pricing. When such voluntary methods—based on bargaining and voluntary cooperation—have failed, producers usually have sought State or Federal action.

The degree of isolation or inter-market competition is another factor. If the market is comparatively isolated, there is less trouble in

establishing a uniform buying plan. Nowadays few markets are isolated and this situation complicates the problem. Milk may move in from neighboring or distant areas not using the same pricing plan. This will threaten or disrupt any seasonal plan.

The comparative shortage or adequacy of milk in the area is closely related and important. For example, base-excess and other plans formerly operated fairly well in many southern markets. This region was generally short of milk qualified for fluid use. Distributors themselves had been interested in securing an even flow of milk, and milk from outside the region had seldom disrupted buying patterns in the region. These conditions began to change in the early 1950's. More milk was available inside and from outside the region. As a result, the seasonal problem began to concern industry leaders in the South.

Base-Excess Plan

The base-excess plan seems the least vulnerable of the plans where prices are not controlled by State and Federal orders. Producers who have an uneven pattern may look for a buyer who does not use base plan. But the buyer who accepts him may not have a good bargain, having either to cut off producers during the flush season or dispose of the surplus milk. Thus all the distributors have an incentive to use the base plan once it becomes widely used in a market.

The main hazard in the base plan under these conditions is the opportunity for distributors to change the plan in their favor. A strong producer organization can do much to relieve this problem. A first objective may be to obtain a regular audit of distributors' records, and secondly to have a voice in all decisions affecting the base plan. These practices have been followed at Denver, Colo., for example, and no major problems in operating this base plan have been reported.

It is desirable for base-excess plan provisions to be applied alike to all producers. It is disruptive for certain producers to receive favored treatment in the assignment of base, or in base adjustments and transfers. Again, strong participation of a producer organization is the answer. A cooperative should request at least equal voice with the distributor in making rules and decisions affecting the base plan.

Fall Premium Plan and Seasonal Variations

State and Federal orders make the buying plan specific and document its terms. This does not always occur without such Government participation. A buying plan needs to be specific and consistent to provide a basis for producer education and achieve producer confidence.

With respect to the fall premium plan, State and Federal orders provide machinery for independent administration of the premium fund. Cooperatives and handlers can make arrangements to handle this fund themselves in markets without State or Federal orders.

State and Federal orders also assist in operating fall premium plans through setting specific pool plant provisions. Clearly the Federal orders have not prevented trouble with additional milk coming on the market in the fall. The entry of additional milk and the charge of "raiding the pool" have contributed to the downfall of fall premium plans in several markets with orders. But setting specific pool plant provisions certainly can help by insuring that milk is included in the pool on a fair basis. With skillful setting of prices and pool plant provisions, there may be little difficulty with pool raiding. It may even be possible as previously mentioned, to drive milk away from the market in the spring, offsetting the tendency to attract milk in the fall.

Coordination Between Markets

FOR stable market conditions, it usually is necessary to have the same seasonal price plan in neighboring markets. This especially ap-

plies to a smaller market surrounded by the milkshed of a larger one. It also applies more emphatically in an area with plenty of Grade A

milk than in one with a shortage.

All types of seasonal plans involve one problem. A market that has small seasonal incentives and borders on a milkshed with more incentive tends to lose the more even seasonal producers and gain those with wider seasonal variations.

Producers cannot or do not switch about rapidly in this way, but such drifts do occur over a comparatively long period. There have been no known cases where a base plan failed because there were other seasonal price plans in the area. The base plan provisions usually stabilize the producer group of a market so that there are fewer producers switching between markets. This does not mean base-excess plans as operated in the 1950's freeze the producer group of a market, but they encourage producers to make decisions at least a year at a time.

Wide seasonal differentials and

fall premium plans are not advisable in some situations. If a lot of milk is available—for example, from producers who usually supply large neighboring markets—a high fall price may be disastrous. The discussion of fall premium plans, and of pool raiding in particular, showed how this result may occur. Wide seasonal differentials of class prices give the same incentives for new milk to enter in the fall, but have not generated the same controversy and educational problem. The problem of fairness to individual producers is indirect or nonexistent, and certainly is not readily recognized.

The experience at Clinton, Iowa, shows the problems that may arise from a fall premium plan in a small market that is not isolated. In brief, many producers shifted in and out of the Clinton pool from the "Quad Cities Pool" (specified areas in Illinois and Iowa) while the premium



The usual spring flush makes it necessary to manufacture Grade A milk not needed for bottling. This milk must be hauled to a manufacturing plant for such use.

plan was in operation at Clinton. This was one reason the plan was discontinued and replaced by a seasonal differential plan similar to the one then in use in the Quad Cities market (23, pp. 41-42).

There is little more of general application to say about the need for coordination. The desirable approach is to start out in any situation to select the seasonal pricing plan and specific provisions that are

suited to the market. The plan used in neighboring markets does not seem the best place to start. But having decided what one would like to do in a market, these questions arise: How will this work? What will happen if this is done, with pricing practices different in neighboring markets? This thinking will guide in discarding impractical provisions and selecting the practical and workable.

Effectiveness of Plans

NUMEROUS studies have included analyses of the effectiveness of seasonal price plans in reducing seasonal variations. Such analysis has shown fairly conclusively that seasonal incentives result in smaller seasonal variations. But it is harder to say, for example, whether the fall premium plan is more or less effective than the base-excess plan. Studies of such questions as these have not been conclusive.

This report does not include results of any new analyses of the effectiveness of seasonal price plans. It would be most difficult to plan analysis that would be conclusive and add to information that is available. This is one of many economic problems that cannot be studied in a laboratory. Study of effectiveness of seasonal pricing in real life requires statistical "control" of numerous conditions. Further, additional information on effectiveness of seasonal incentive plans is not essential to understanding the plans better and improving them.

Base-Excess Plans

Analysis of markets in the South showed at least moderate effective-

ness of base-excess plans. Seventeen markets in six States were studied. Producers delivering to plants that were using base-excess plans alone had the most uniform production patterns. These markets did not have even use classification pricing. This study revealed, however, that price incentives were greatest in markets using a combination of use classification and base-excess pricing (more like typical practices in mid-western markets). Although price incentives were greater, seasonal patterns of deliveries were less uniform. The study did not reveal reasons for this inconsistency (14, p. 22).

Study of four Ohio markets showed a return to greater seasonal variations after base-excess plans were discontinued. The plan was continued at Columbus later than at the other cities, which makes the following statements interesting:

"The uniform ratio ¹¹ in the Columbus market during the period 1938 through 1943, as contrasted to the downward trend in the ratio during this period for other mar-

¹¹ Ratio of fall to spring deliveries in the markets.

kets not operating under the base plan, gives support to the assumption that the base plan tended to bring about a more even seasonal pattern of total milk deliveries. Also supporting this assumption is the evidence showing that when the Columbus market discontinued the base plan, the ratio followed the same downward trend as it did in the other markets previously discontinuing the plan" (3, pp. 11-12).

Quackenbush and Homme, analyzing the Detroit, Mich., market, concluded as follows about effectiveness of the base-excess plan:

"From the data on price incentives from 1931 to 1950 and seasonality of deliveries from 1934 to 1950, one might infer that little, if any, relationship has existed between the two. Producer response to changes in incentives over either a short-time or long-time period would be difficult to detect. If there was a relationship the data might suggest a time-lag of about four years" (18, p. 31). Continuing, these same authors pointed out some complications of this type of analysis. Fluctuation in producer numbers is troublesome. The claim is often made, and the evidence seems substantial, that new producers coming from plants handling manufacturing grade milk have not had much attention called to the seasonal problem and tend to have uneven seasonal patterns.

These references are sufficient to show strong evidence that base-excess plans have resulted in reduced seasonal variations. The material just summarized should be interpreted as favorable to the plans. Each author was generally convinced of the effectiveness of the plans, but at the same time was

careful to point out that the evidence studied was not altogether conclusive. The evidence and the logic of the plan are so persuasive, in fact, that marketing officials may fully expect a base-excess plan to result in more nearly even deliveries.

Fall Premium Plans

Analysis of producer responses to the fall premium plan at Louisville, Ky., revealed evidence of the worth of this plan. There was special study of records of producers who had delivered milk to the market at least 5 years and thus had worthwhile experience on the market. The patterns of these producers leveled out after the fall premium plan was introduced in 1944.

Authors of the special study concluded, "By acting as an educational stimulus, premium payments have been instrumental in bringing about substantial progress in production adjustment in the market. This is emphasized by the fact that approximately one out of every three producers who have shipped continuously under the plan for five years are shipping as much milk in the fall months as they ship during the spring months. This is quite a contrast to the less than one out of every ten producers who shipped in these proportions prior to the introduction of the fall-premium plan" (20, pp. 30-37).

Pritchard, studying the plans in 11 markets in 1952, noted that fall premium plans had increased seasonal variations in blend prices in each of the 8 markets that had these plans 4 years or more. This is simply to state that the plans had in fact increased seasonal incentives and therefore it was sound to search

for results of the plans. He concluded that they appeared to have induced farmers in these markets to decrease seasonal variations in milk deliveries. The changes in some markets were slight, but notably at Washington, D. C., and in Connecticut they were large. He also cited strong support of the plans in each market by such competent observers as leaders of producers' associations and market administrators.

Pritchard recognized that his data were not conclusive and pointed the way for further research. His general conclusion seems appropriate for this section:

"In short, even though the effectiveness of fall premium plans cannot be measured with accuracy, the plans may be a potent means of inducing farmers to reduce seasonal fluctuations in milk production. Furthermore, with only slight modifications, the plans probably can be more effective than they have been" (16, pp. 11-13).

Seasonal Variation of Class Prices

In some ways one might expect the results of seasonal price variations to be the same as for fall premium plans. At least theoretic-

ally, the same price and income incentives can be provided. But this expectation would imply that psychology and education are not involved in the results of pricing plans. This is unsound; the psychology of the plans and the education that accompanies them seem as important in determining the results as the barren, factual price structure.

Research reports reviewed did not include results of analysis comparable to that described for base-excess and fall premium plans. Several writers have made general statements about results of seasonal variation of class prices, but these have not been supported by careful analysis. This should not lead readers to doubt the effectiveness of this approach; there just has not been this type of analysis.

In the absence of evidence, we may suppose seasonal variation of class prices also is effective. We may suppose further that the plans could be made more effective than they have been. It was contended previously (p. 43) that more consistent and courageous use of these plans would remove the major road-block to their effectiveness. This limitation is not of the plan itself, but of its application.

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- Selling Milk . . . Ideas for Cooperative Managements, FCS General Report 20. *Donald E. Hirsch.*
- Vending Milk in Small Containers, by Cooperatives and Others, FCS Circular 20. *Hughes H. Spurlock and Donald E. Hirsch.*

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